Environment Canada Environnement Canada

FLOODING EVENTS IN NEW BRUNSWICK AN HISTORICAL PERSPECTIVE

IWD-AR-WPMB-84-65

Canada

WATER PLANNING AND MANAGEMENT BRANCH
INLAND WATERS DIRECTORATE
ATLANTIC REGION
DARTMOUTH, NOVA SCOTIA

FLOODING EVENTS IN NEW BRUNSWICK

AN HISTORICAL PERSPECTIVE

IWD-AR-WPMB-84-65

A. D. KINDERVATER

WATER PLANNING AND MANAGEMENT BRANCH
INLAND WATERS DIRECTORATE
ATLANTIC REGION
DARTMOUTH, NOVA SCOTIA
MARCH 1976
REVISED - MARCH 1985

PREFACE

This report has been prepared as a consolidated source of background information on, and an historical perspective of flooding events in New Brunswick. It updates a similar report prepared in 1976. A consolidation of flood related information has proven invaluable in conducting studies with the objective of reducing flood damage potential in New Brunswick.

One of the major problems associated with compiling a report of this nature is to find precise records of a technical nature that describe the cause, magnitude and extent of flooding and associated flood damages. The primary sources of information have included government records, reports and newspaper. While every effort has been made to present a factual and unbiased account of past floods, no warranty can be placed on the preciseness of the descriptions contained herein. The reader is best advised, therefore, to consult original sources of information in all cases of detailed study.

It is the intention of the Inland Waters Directorate to periodically update this document as and when new information becomes available. Accordingly, it would be greatly appreciated if readers of this report who know of additional and/or more accurate information which would further advance the knowledge of flooding in New Brunswick, could make such information known to us.

Reports of this nature have also been prepared for the Provinces of Nova Scotia and Newfoundland.

T.W. Hennigar, Chief
Water Planning and Management Branch
Inland Waters Directorate, Atlantic Region
Environment Canada
45 Alderney Drive
Dartmouth, Nova Scotia
B2Y 2N6

ABSTRACT

Flooding is a major problem in New Brunswick. Beginning with 1696, when the earliest known flood occurred, this report chronicles some 189 flood events. The descriptions provided focus on the causes, magnitude and damages associated with each event. In addition to the chronology, a summary of damages for the Province, and an overview of flood events by community/river basin/region (as appropriate) are presented.

Of the 189 flood events documented in this report, eight have caused damages in excess of four million dollars each since the turn of the century. The floods which occurred in 1923 and 1973 were by far the most destructive with damages totalling $47 million and $24 million respectively (expressed in 1983 dollars). The 1973 flood was, in many respects, the largest and most widespread since records have been kept. The damages associated with this event would have been much greater had it not been for the existence of flood forecasting, warning and emergency response systems.

About 35 percent of past floods have been associated with ice jams which tend to be more destructive than open water events. Ice jams and the subsequent breakup have resulted in considerable damage to hydraulic structures in the Province - particularly bridges. Floods have destroyed/damaged in excess of 475 bridges during some 58 events, of which at least 50 percent involved ice as a contributing factor. The 29 events which involved ice jamming, however, accounted for some 70 percent of the total number of bridges damaged or destroyed.

The total flood damages, for the past 100 years, are estimated at approximately $250 million, or $2.5 million annually. However, the data base established in this report suggests the total flood damages have approached or exceeded $6 million annually over the past decade. Evidence is presented to demonstrate that the physical dimensions of floods have not materially changed over time. It is concluded that increasing development of floodplain lands is the primary factor behind this trend.

This report does not attempt to describe intangible damages surrounding floods. It is noteworthy that some 45 people have lost their lives either directly or indirectly as a result of flooding in the Province.

RESUME

Les crues ont toujours été un problème sérieux au Nouveau-Brunswick. Ce rapport nous présente une chronologie de quelques 189 inondations, la premières dont nous avons connaissance ayant eu lieu en 1696. Ces inondations nous serons présentées selon leurs causes, l'ordre de grandeur ainsi que les dégats encourus. En plus de l'historique, ce résumé nous offre un sommaire des dégats dûs aux inondations à travers la province ainsi que par localité, par bassin versant ou bien par région (selon le besoin).

Depuis le début du siècle, 8 des ces inondations ont causé des dégats dépassant chacun les quatre millions de dollars. C'est en 1923 et en 1973 que les inondations les plus dévastatrices eurent lieu, les dégats de celles-ci se chiffrant respectivement à 47 millions et 24 millions de dollars (en valeur monétaire ramenée à 1983). De plusieurs points de vue, la crue de 1973 fut la plus considérable depuis que nous conservons des données hydrologiques. Les dégats qui en découlèrent auraient certes été plus considérables si ce n'avait été de systèmes de prévision, d'avertisement et de mesures d'urgence déjà en place.

Environ 35 pour-cent des inondations sont mentionnées le résultat d'embâcles. De façon générale, ces débordements peuvent causer plus de dommage que ceux qui résultent des crues. Ce sont les structures hydrauliques, plus particulièrement les ponts, qui subissent le plus sévèrement les contre coups de ces embâcles et des débâcles subsèquantes. Plus de 475 ponts ont été détruits ou endommagés lors de quelques 58 inondations documentées dont au moins 50 pour-cent étaient liées au problème de la glace. Les 29 embâcles sus-mentionnées furent à l'origine d'environ 70 pour-cent des dommages encourus par les ponts.

On estime à 250 millions de dollars les pertes totales dues aux inondations au cours des dernièrs cent ans, c.-à-d, 2,5 millions de dollars par an. Cependant, les données récentes nous indiquent que les dégats dûs aux inondations ce chiffrent à plus de 6 millions de dollars l'an durant la dernière décénie. Nous démontrerons que l'envergure des inondations n'a pas augmenté substantiellement et que la tendance vers

une augmentation des coûts est due principalment au développement accru des terres situées sur les plaines inondables.

Ce rapport ne se veut pas une èvaluation des pertes qui sont indirectement liées aux inondations. Toute fois, il est à remarquer qu'environs 45 pertes de vie ont ètè attribuées directement ou indirectement aux inondations ayant eu lieu dans la province du Nouveau-Brunswick.

ACKNOWLEDGEMENTS

The preparation of this report would not have been possible without the assistance and co-operation of a large number of agencies and individuals.

Many federal and provincial agencies supplied information and advice in one form or another. Most of the information was obtained from a report entitled "Flooding in the Saint John River Basin", prepared for the Saint John River Basin Board by the Inland Waters Directorate, Department of the Environment, Halifax, Nova Scotia, December, 1973.

Acknowledgement must also be given to the staff of the microfilm and newspaper file sections of the Harriet Irving Library, University of New Brunswick, for their assistance and co-operation.

The production of this report would not have been possible without the assistance of Ms. D. Birks for her patience on input and editing of the manuscript on the word processing system; Ms. Lynn Kay for her assistance on data compilation; Mr. R.G. Howatt and Ms. Kelly Taylor for production of the figures; and Mr. D.A. Smith and Mr. J.D. Keefe for their advice and guidance.

TABLE OF CONTENTS

PAGE

PREFACE (i)

ABSTRACT (ii)

RESUME (iii)

ACKNOWLEDGEMENTS (v)

TABLE OF CONTENTS (vi)

LIST OF FIGURES (viii)

LIST OF TABLES (ix)

LIST OF PHOTOGRAPHS (ix)

1.0 INTRODUCTION 1
- 1.1 General 1
- 1.2 Purpose of the Report 1
- 1.3 Scope of the Report 1

2.0 FLOOD DAMAGES IN NEW BRUNSWICK 3
- 2.1 General 3
- 2.2 Direct Damages 4
- 2.3 Indirect Damages 11
- 2.4 Intangible Damages 14
- 2.5 Damage Trends 14

3.0 OVERVIEW OF FLOODS IN NEW BRUNSWICK 19
- 3.1 General 19
- 3.2 Saint John River Basin 27
  - 3.2.1 Fredericton Area 31
  - 3.2.2 Maugerville-Sheffield Area 33
  - 3.2.3 Middle Reach of the Saint John River 36
  - 3.2.4 Upper Reach of the Saint John River 37
  - 3.2.5 Nashwaak River Valley 37
  - 3.2.6 Oromocto River Valley 40
  - 3.2.7 Kennebecasis River Valley 40
  - 3.2.8 Other Tributaries of the Saint John River 41
- 3.3 Northeastern River Basins 41
  - 3.3.1 Restigouche River Basin 42
  - 3.3.2 Miramichi River Basin 42
  - 3.3.3 Other River Basins in Northeastern New Brunswick 46

TABLE OF CONTENTS (Cont'd)

PAGE

3.4 Southeastern River Basins 46
3.4.1 Petitcodiac River Basin 46
3.4.2 Tantramar River Area 47
3.4.3 Hemramcook River Basin 48
3.4.4 Other River Basins in Southeastern New Brunswick 48
3.5 Southwestern River Basins 48
3.5.1 St. Croix River Basin 52
3.5.2 Magaguadavic River Basin 52
3.5.3 Other River Basins in Southwestern New Brunswick 52

4.0 CHRONOLOGY OF FLOODING EVENTS IN NEW BRUNSWICK 54

5.0 REFERENCES 243

LIST OF FIGURES

PAGE

Figure 1 Accumulative Total Direct Damages (in 1983 dollars) Due to Flooding in New Brunswick - 1860 to 1984 17

Figure 2 Distribution of Flooding Events in New Brunswick by Month 20

Figure 3 Number of Documented Flood Events per Decade from 1694 to 1983 21

Figure 4 Annual Maximum Daily Mean Water Levels, Saint John River at Fredericton, Station 01AK003 22

Figure 5 Population Versus Time, Province of New Brunswick 23

Figure 6 Accumulative Reported Number of Lives Lost in New Brunswick Due to Flooding 25

Figure 7 Principal Drainage Regions in New Brunswick 26

Figure 8 Distribution of Reported Flooding Events in the Saint John River Basin by Month 27

Figure 9 Distribution of Reported Flooding Events in the Restigouche River Basin by Month 43

Figure 10 Distribution of Reported Flooding Events in the Miramichi River Basin by Month 43

Figure 11 Distribution of Reported Flooding Events in the Southeastern Basins by Month 47

Figure 12 Distribution of Reported Flooding Events in the St. Croix River Basin by Month 49

Figure 13 Distribution of Reported Flooding Events in the Magaguadavic River Basin by Month 49

Figure 14 Flood Stages - May 1887 (Fredericton and Indiantown) 60

Figure 15 Bridges Damaged/Destroyed by Flooding of March, 1936 117

Figure 16 Location of Ice Jams, Flood of March 16-25, 1936 118

Figure 17 Location of Ice Jams, Flood of April 20-25, 1950 131

LIST OF FIGURES (Cont'd)

		PAGE
Figure 18	Bridges Damaged/Destroyed by Flood of February, 1970	172
Figure 19	Locations of Ice Jams, Flood of February, 1970	173
Figure 20	Location of Ice Jams, Flood of Early April, 1976	201

LIST OF TABLES

		PAGE
Table 1	Flood Damages in New Brunswick	5
Table 2	Present Value (1983) of Past Flood Damages in New Brunswick	12
Table 3	Deaths Attributed to Flooding and/or Flood-Related Accidents in New Brunswick	15
Table 4	Selected Recorded Maximum Daily Mean Stage, Lower Reaches of the Saint John River	28
Table 5	Potential Damage by Floods of Varying Frequency in the Greater Fredericton Area as of 1983	33
Table 6	Potential Damage by Floods of Varying Frequency in the Greater Fredericton Area as of 1983 with Levels Increased by 0.2 Metres	33

LIST OF PHOTOGRAPHS

		PAGE
Photograph 1	Fredericton Waterfront from Highway Bridge - 1887	2
Photograph 2	Collapse of Highway Bridge due to Log Jam (Becaguimec River at Hartland - 1923)	18
Photograph 3	C.N.R. Bridge, Fredericton - Prior to Collapse, March 20, 1936	29
Photograph 4	Christ Church Cathedral, Fredericton, March 20, 1936	30

LIST OF PHOTOGRAPHS (Cont'd)

		PAGE
Photograph 5	Floodwaters Surrounding Residence near Upper Maugerville, 1 May, 1979 at 8:05 a.m.	34
Photograph 6	Floodwaters over Trans Canada Highway at Dutch Drive-In Restaurant and Motel, Maugerville, 1 May, 1979 at 8:25 a.m.	34
Photograph 7	Maugerville United Church on Trans Canada Highway, 1 May, 1979 at 9:28 a.m.	35
Photograph 8	S and F Greenhouses at Sheffield 1 May, 1979 at 9:42 a.m.	35
Photograph 9	Flooding in Perth-Andover, 4 April, 1976	38
Photograph 10	Marysville Bridge on the Nashwaak River after the Flood of February 4 - 5, 1970	39
Photograph 11	View of Blackville on the Little Southwest Miramichi River, 28 May, 1961	45
Photograph 12	Covered Bridge Destroyed at Brockway, Magaguadavic River, 4 February, 1970	51
Photograph 13	Brunswick Street, Fredericton from End of Allen Street - 1887	62
Photograph 14	Collapse of Highway Bridge Due to Log Jam (Becaguimec River at Hartland - 1923)	87
Photograph 15	Intersection of Carleton and Brunswick Streets, Fredericton, 19 March, 1936	110
Photograph 16	Saint John Street, Fredericton during morning of 20 March, 1936	111
Photograph 17	Comparison of 1936 High Water Mark with that of 1887, Normal School, Fredericton	115
Photograph 18	Hon. Louis Robichaud, former Premier of New Brunswick, Inspecting Flood Damage along the Saint John River in Maugerville Area 29 May, 1961	149
Photograph 19	Flooded Lands In Maugerville Area on Saint John River, 29 May, 1961	150

LIST OF PHOTOGRAPHS (Cont'd)

		PAGE
Photograph 20	Town of Nashwaak Bridge on Nashwaak River after Flood, 28 May, 1961	153
Photograph 21	Durham Bridge Several Miles Downstream from Original Site after Flood of February 4-5, 1970	167
Photograph 22	Legislative Building, Fredericton, Prior to Peak Stage, 29 April, 1973	184
Photograph 23	Flooding of Mobile Homes in Trailer Court Southeast of Fredericton, 30 April, 1973	185
Photograph 24	Flooding in Maugerville Area, 30 April, 1973	188
Photograph 25	Tomlinson Residence, North of Railroad Bridge Perth-Andover, 2 April, 1976 at 4:15 p.m.	204
Photograph 26	View Upstream from West End of Railroad Bridge Perth-Andover, 2 April, 1976 at 4:15 p.m.	204
Photograph 27	View across Beechwood Headpond, Perth-Andover 2 April, 1976 at 4:00 p.m.	205
Photograph 28	Flooded Section of Highway at McAllister's, South of Highway Bridge, Perth-Andover, 2 April, 1976 at 5:40 p.m.	205
Photograph 29	Flooding in a Portion of Perth-Andover 4 April, 1976	206
Photograph 30	Queen's Square, Fredericton, 30 April, 1979 at 3:05 p.m.	225
Photograph 31	Centennial Building, Fredericton, 30 April, 1979 at 3:30 p.m.	225
Photograph 32	Lakeville Corner Bridges, 1 May 1979 at 10:40 a.m.	226
Photograph 33	Devon Underpass, Northside of Saint John River at Fredericton, 1 May, 1979 at 1:00 p.m.	226

1.0 INTRODUCTION

1.1 General

Flooding is a natural process. Man, however, has historically been attracted to floodplains, primarily because of their fertile soils and their proximity to water-based transportation. As communities grow, they attract more and more development (including land-based transportation systems), some of which is usually located on floodplain lands. In some cases, this development further compounds the flooding problem by reducing the natural water conveyance capacity of rivers and thus increases the height and extent of flood waters.

1.2 Purpose of the Report

The basic objective of this report is to provide an historical perspective of the flooding problem in New Brunswick. It is intended that the information provided herein would supply the reader with a general understanding of the nature and extent of flooding in the Province. The material should be of primary interest to engineers, planners and managers involved in efforts to diminish the growth of flood damages and loss of life due to floods and flood related accidents.

1.3 Scope of the Report

This report contains information on 189 historical floods which occurred between 1696 and 1984. The material was obtained from newspaper accounts, the files of government agencies and various government and privately produced publications.

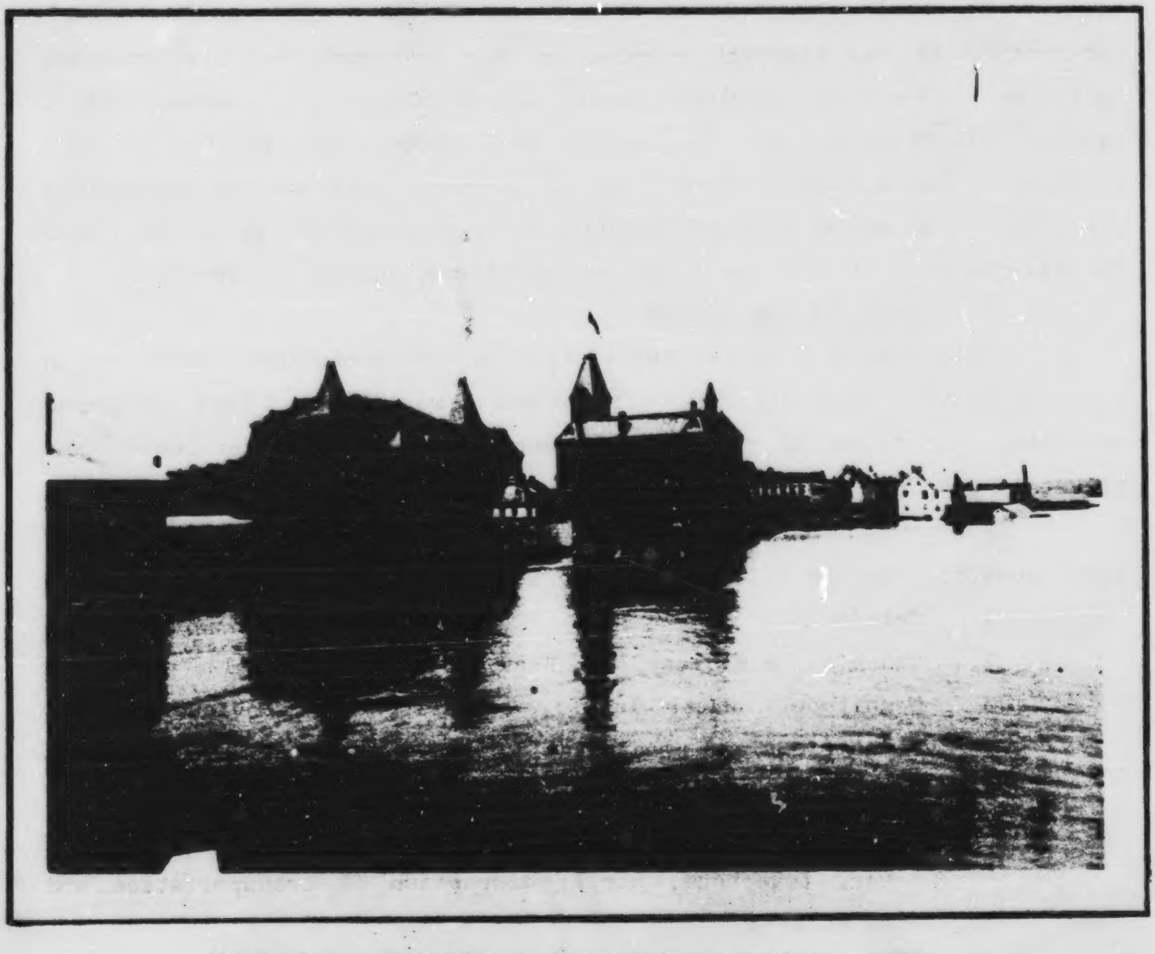
For each flooding event, material was sought and summarized where possible, in the following categories:

1. Date(s)
2. Cause(s): e.g. ice jams, heavy rainfall, snowmelt, etc.
3. Magnitude: water levels, comparison to previous floods, streamflows and precipitation
4. Damages: losses by sector (residential, industrial, agricultural, infrastructure); loss of services (i.e. power, telephone, etc.); disruption of transportation and loss of life

The information is not of uniform quality and accuracy. In many cases, the descriptions are of a non-technical nature, such as those found in newspapers or history books. It was often difficult to obtain quantitative information. Even in the case of recent major floods, for which some record was kept, there are limitations on the data available.

In addition to the detailed and fairly lengthy chronological descriptions of flood events presented in Chapter 4, two summary chapters have been prepared to help crystalize the flooding problem in the Province and thereby be of more interest and use to a wider audience. Chapter 2 summarizes the available information on flood damages. Chapter 3 contains an overview of the flooding problem by location and/or river basin, describing the frequency, timing, damages and causes of flooding.

Photograph 1



Fredericton Waterfront from Highway Bridge - 1887

City Hall at centre; Provincial Normal School left of centre.

Photo Credit: N.B. Public Archives

2.0 FLOOD DAMAGES IN NEW BRUNSWICK

2.1 General

Damages caused by flooding are generally classified into three categories - direct, indirect and intangible. Direct damages are losses to property which are the direct result of inundation or of the forces of moving water, ice and/or debris. Direct damage has also included such losses as the destruction of mills and dams, as well as the loss of logs from booms. During major floods, direct damages to railway, highway and utility systems typically account for about 70 percent of the total reported direct damages. Damage to private property and agricultural operations account for about 20 percent and 10 percent of the total direct damages respectively (Ref. 12). This was the case during the events of both 1961 and 1970. During the 1973 event, however, structural damage to railway, highway and utility systems was relatively low in comparison to past major flood events. Of the total direct damages associated with the 1973 flood, approximately 50 percent occurred in the private sector, 40 percent in the public sector and 10 percent in the agricultural sector (Ref. 14).

Indirect damages are those losses which have a monetary value but do not occur directly as a result of flooding. Examples are the loss of income and reduction in property value. Indirect damages occur during and immediately following a flood, such as in the case of the loss of income by employees temporarily put out of work by the closure of a plant. These damages may also extend over several months or years after the flood, for example, crop losses due to late planting or property devaluation. Indirect losses are generally transferred from person to person, thereby producing a multiplier effect. The reduction in income of a factory worker leads to reduced incomes for grocers, car salesmen, department store owners and also governments via tax losses.

Intangible damages are those which cannot be valued in monetary terms. Examples are loss of life, the inconvenience of being delayed or having to cancel a trip, and the closure of schools, parks and other public facilities. Generally, these losses are of a personal nature and do not have a value placed on them by society at large.

Direct damages are the most apparent, and hence this is the category of damage for which information is most readily available. The discussion of past damages and flood damage potential in the remainder of this chapter is thus almost entirely related to direct damages. Information on indirect damages is not generally available for the Province, but studies elsewhere (referred to in Ref. 12) have shown that indirect damages usually amount to about one-half of the direct damages.

2.2 Direct Damages

A summary of available information on direct damages from past floods is presented in Table 1. The information is subdivided into two classes. The first class includes estimates made at the time of the flood and reported in newspaper accounts. The information in this class is not accurate because of the inherent tendency of the news media (or people providing estimates to the news media) to overestimate damages during a disaster. An example of this estimation problem occurred during the major flood of May 1961, when the newspaper accounts reported the total damages in New Brunswick to be in the order of $7,000,000 while actual documented information shows the total direct damages to be in the order of $2,200,000.

The second class of information includes quantitative data obtained in surveys following the flood as well as actual expenditures required to replace or repair damaged property. This class of information is obviously far more reliable, but unfortunately is not generally available. In cases of severe flooding, such as in 1923, 1936, 1961, 1970, 1973 and 1979, some records are available, but even in those years, only certain categories of damages were recorded. Also, more data exists for the recent occurrences than for those several decades ago.

Another difficulty arises due to differences in the methods of reporting financial losses. Some structural damages are reported as the cost of replacing the structure with a new one of better, equal or inferior quality, or of a different size or design, whereas, there are other ways to measure damage, such the depreciated value of the structure at the time the damages occurred.

Estimates of the "most probable value" of the actual damages resulting from those floods for which information is available are also given in Table 1. These "most probable values" are based on documented information where available. In cases where documented information is not available, the values have been estimated indirectly from newspaper reports. As previously mentioned, for recent events where considerable

TABLE 1

FLOOD DAMAGES IN NEW BRUNSWICK

Flood Event	Description	Newspaper Accounts (Estimates) ($)	Documented Information ($)	Most Probable Value ($)
October 4-5 1869	Eastern Extension Railway	20,000		10,000
	Albert Manufacturing Co., Hillsboro	20,000		10,000
	Tantramar Marshes - Total Damages	81,000		40,500
April 25-May 14 1887	Total Damages	500,000		250,000
	Bridges and Highways	100,000		50,000
April 7-12 1901	Sawmill at Woodstock	15,000		7,500
	Loss of Logs	25,000		12,500
March 17-23 1902	Bridge Damage	50,000		25,000
	Travelling Salesman's Loss - Plumwesweep	1,500		750
January 4-7 1909	Bridges and Highways	100,000		50,000
August 8-12 1912	Ogden Mill, Westmorland County	300		150
March 28 - April 5, 1913	Highway Bridge at Fredericton	30,000		15,000
July 8-9 1915	Total Damages-Northumberland County	500,000		250,000
	Loss of Logs	200,000		100,000
June 17-25 1922	Total Damages	1,000,000		500,000
	N.B.D.P.W. - Roads and Bridges	250,000		125,000
	Hayden Lumber Company, Woodstock - Loss of Logs	4,000		2,000

TABLE 1 (Cont'd)

FLOOD DAMAGES IN NEW BRUNSWICK

Flood Event	Description	Newspaper Accounts (Estimates) ($)	Documented Information ($)	Most Probable Value ($)
August 26-28 1922	Bridges and Highways	100,000		50,000
April 29-May 9 1923	Total Damages - All New Brunswick	7,500,000		3,750,000
	Madawaska County	75,000		37,500
	N.B.D.P.W. - Roads and Bridges		380,000	380,000
	Loss of Logs, Kennebecasis River	25,000		12,500
	St. Croix River Basin - Total Damage	1,000,000		500,000
	Cotton Mill at Milltown	175,000		87,500
	Magaguadavic River Basin - Property Damage	200,000		100,000
August 24-25 1927	N.B.D.P.W. - Roads and Bridges in Westmorland County	50,000		25,000
April 16-24 1934	Total Damage - Private and Agricultural Sectors	250,000		125,000
	N.B.D.P.W. - Roads and Bridges		47,900	47,900
	Plaster Rock Bridge	17,000		8,500
	Maugerville-Sheffield - Private and Public Property	100,000		50,000
	Fox Farm, Maugerville	2,000		1,000
January 9-12 1935	Super Service Station - Sackville	185		100
March 16-25 1936	N.B.D.P.W. - Bridges and Highways		150,000	150,000
	C.N.R. Bridge - Fredericton	1,500,000		750,000
	Fredericton - City Engineer's Report		643	643
	Downtown Fredericton - Public and Private Property	2,000,000		1,000,000

TABLE 1 (Cont'd)

FLOOD DAMAGES IN NEW BRUNSWICK

Flood Event	Description	Newspaper Accounts (Estimates) ($)	Documented Information ($)	Most Probable Value ($)
April 20-24 1950	Total Damages	1,000,000		500,000
	Bridge Repairs	150,000		75,000
November 28-30 1950	Kingston Corner, Kings County - Total Damage	30,000		15,000
December 12-25 1950	Aboiteaux Repairs - Sackville	3,000		1,500
April 5-14 1951	Gravel Pit - Connors	15,000		7,500
	Matapedia - Total Damages	50,000		25,000
	C.N.R. - Matapedia	25,000		12,500
September 11-13 1954	Highway Damages - Restigouche County	100,000		50,000
	Ganong Brothers - St. Stephen	5,000		2,500
April 24-30 1958	N.B.D.O.H - Highways and Bridges, Saint John River Basin	250,000		125,000
May 8-12 1961	Total Damages - All New Brunswick	1,000,000		500,000
May 25-31 1961	Total Damages - All New Brunswick	7,000,000		3,500,000
	Damages to Private Property - N.B. Disaster Fund		399,500	399,500
	Damages to Bridges - N.B.D.P.W.		581,000	581,000
	Damages to Roads and Highways - N.B.D.P.W.		1,115,301	1,115,301
	Damage to C.P.R. - Bridges and Rail Lines		78,716	78,716
	Municipal Damage - Fredericton		30,000	30,000

TABLE 1 (Cont'd)

FLOOD DAMAGES IN NEW BRUNSWICK

Flood Event	Description	Newspaper Accounts (Estimates) ($)	Documented Information ($)	Most Probable Value ($)
March 31-April 4, 1962	Total Damages-Sackville		197,000	197,000
	Service Station - Moncton	25,000		12,500
	Total Damages - Kings County	100,000		50,000
May 1-10 1963	N.B. Electric Power Commission		13,475	13,475
April 6-10 1968	Total Damages - Saint John River Basin	100,000		50,000
	Municipality of Hartland - Town Clerk's Report		17,000	17,000
	Hartland Store	7,000		3,500
May 11-13 1969	C.N.R. - Track Labour		20	20
February 2-6 1970	Private Property and Agricultural Losses - N.B. Dept of Municipal Affairs		273,416	273,416
	C.N.R. and C.P.R. Losses		360,000	360,000
	N.B. Telephone Co.		42,850	42,850
	Town of Marysville (Road Damage)		4,027	4,027
	N.B. Electric Power Commission		207,375	207,375
	N.B.D.P.W. - Highways and Bridges		3,741,000	3,741,000
April 27 - May 5, 1973	Total Damages - All New Brunswick		11,900,000	11,900,000
	Agricultural Sector		737,990	737,990
	Business Sector		503,980	503,980
	Organizational Sector		134,129	134,129
	Private Sector		1,991,467	1,991,467
	Public Sector		4,060,039	4,060,039

TABLE 1 (Cont'd)

FLOOD DAMAGES IN NEW BRUNSWICK

Flood Event	Description	Newspaper Accounts (Estimates) ($)	Documented Information ($)	Most Probable Value ($)
March 5 1974	Moncton - Private Residence	10,000		5,000
April 29 - May 18, 1974	Campbellton - Private Property	5,000		2,500
	Total Damages - Public Sector		325,600	325,600
	N.B. Dept. of Education		200	200
	Tourism New Brunswick		35,000	35,000
	N.B.D.O.H. - Highways and Bridges		290,400	290,400
November 13-14 1974	Campbellton - Timber Crib Repair Shorefront Properties		14,310	14,310
November 14-17 1975	Saint John - Private Property	600,000		300,000
March 31 - April 5, 1976	Total Damages - Saint John River Basin (Green River to Woodstock)	4,000,000		2,000,000
	N.B. Dept. of Transportation - Highways and Bridges		262,070	262,070
	N.B. Dept. of Municipal Affairs - Municipal Property		130,380	130,380
	N.B. Dept. of Supply and Services		22,480	22,480
	N.B. Dept. of Education - Schools, Perth-Andover		12,920	12,920
	C.P.R. Bridge - Woodstock	700,000		350,000
August 10-11 1976	N.B.D.O.H. - Highway Damage - District 10, Madawaska Co.		112,880	112,880
	N.B. Dept of Municipal Affairs - Municipal Property, Madawaska Co.		42,050	42,050

TABLE 1 (Cont'd)

FLOOD DAMAGES IN NEW BRUNSWICK

Flood Event	Description	Newspaper Accounts (Estimates) ($)	Documented Information ($)	Most Probable Value ($)
January 10-11 1978	Breakwater Repairs and Replacement, Government Wharf - Alma, Westmorland County	250,000		125,000
March 26 - April 5, 1979	N.B.D.O.H. - Highways and Bridges		1,930,133	1,930,133
	N.B. Dept. of Municipal Affairs - Municipal Services and Buildings		143,195	143,195
April 24 - May 7, 1979	Total Damage - All New Brunswick	4,000,000		2,000,000
	N.B. Dept. of Transportation - Highways and Bridges		960,252	960,252
	N.B. Dept of Municipal Affairs - Municipal Property		4,232	4,232
	N.B. Dept of Natural Resources - Road Repair		368,208	368,208
September 6-7 1979	Total Damage - Moncton Area	1,000,000		500,000
February 24-27 1981	Residential Damage - Hartland Area	10,000		5,000
August 15-16 1981	Total Damage - Westfield Area	100,000		50,000
April 17-22 1983	Private Sector Damages - Matapedia	300,000		150,000
April 16-21 1984	Private Sector Damages - Matapedia	50,000		25,000

documentation exists, the newspaper estimates were found to be about twice the documented damages. Hence, where no better information is available, the newspaper estimates were arbitrarily divided by two to arrive at the "most probable value" of damage. It should be noted that damage estimates for the United States portion of the Saint John River Basin, which have been considerable, especially for Fort Kent, Maine, have not been included in this analysis.

The damage figures for individual floods presented in Table 1 cannot be compared directly because of the gradual reduction in the value of the dollar which has taken place with time. One way of overcoming this is to express all damages in terms of a common denominator as has been done in Table 2 (the 1983 price level was selected as the common denominator because it was the most recently available Building Construction Index). The total direct damages from Table 2 is in the order of $173 million or $1.5 million annually. The figures indicate that, since 1887, floods have caused direct damages in excess of four million dollars at 1983 price levels during nine years. These are:

Flood Event	Flood Damage at 1983 Levels
April 25 - May 14, 1887	$ 6,500,000
July 8 - 9, 1915	6,100,000
June 17 - 25, 1922	7,500,000
April 29 - May 9, 1923	47,000,000
March 16 - 25, 1936	26,000,000
May 25 - 31, 1961	14,000,000
February 2 - 6, 1970	12,700,000
April 27 - May 5, 1973	24,000,000
March 31 - April 5, 1976	4,700,000

NOTE: The combined damages for two floods which occurred in 1979 (i.e., March 25 - April 5, and April 24 - May 7) exceeded $5,000,000.

2.3 Indirect Damages

Based on previous reports, it is reasonable to assume that indirect flood damages are about one-half of the direct damages. Therefore the total average annual costs of flooding in the Province is probably well over 2.5 million dollars.

TABLE 2

PRESENT VALUE (1983) OF PAST FLOOD DAMAGES IN NEW BRUNSWICK

Flood Event	Estimate of Damage	
	Most Probable Value	Value at 1983 Prices*
	($)	
	($)	
October 4 - 5, 1869	60,500	1,600,000**
April 25 - May 14, 1887	250,000	6,500,000**
April 7 - 12, 1901	20,000	520,000**
March 17 - 23, 1902	25,700	670,000**
January 4 - 7, 1909	50,000	1,200,000**
August 8 - 12, 1912	150	3,700**
March 28 - April 5, 1913	15,000	350,000
July 8 - 9, 1915	250,000	6,100,000
June 17 - 25, 1922	500,000	7,500,000
August 26 - 28, 1922	50,000	750,000
April 29 - May 9, 1923	3,750,000	47,000,000
August 24 - 25, 1927	25,000	310,000
April 16 - 24, 1934	232,000	3,800,000
January 9 - 12, 1935	100	1,300
March 16 - 25, 1936	1,900,000	26,000,000
April 20 - 24, 1950	500,000	3,100,000
November 28 - 30, 1950	15,000	93,000
December 12 - 15, 1950	1,500	9,300
April 5 - 14, 1951	32,500	190,000
September 11 - 13, 1954	52,500	275,000
April 24 - 30, 1958	125,000	570,000
May 8 - 12, 1961	500,000	2,100,000
May 25 - 31, 1961	3,500,000	14,000,000
March 31 - April 4, 1962	260,000	1,040,000
May 1 - 10, 1963	13,500	53,000
April 6 - 10, 1968	50,000	160,000
February 2 - 6, 1970	4,630,000	12,700,000

TABLE 2 (Cont'd)

PRESENT VALUE (1983) OF PAST FLOOD DAMAGES IN NEW BRUNSWICK

Flood Event	Most Probable Value ($)	Estimate of Damage Value at 1983 Prices* ($)
April 27 - May 5, 1973	11,900,000	24,000,000
March 5, 1974	5,000	9,700
April 29 - May 18, 1974	328,100	656,200
November 13 - 14, 1974	14,000	28,000
November 14 - 17, 1975	300,000	540,000
March 31 - April 5, 1976	2,000,000	4,700,000
August 10 - 11, 1976	154,000	252,000
January 10 - 11, 1978	125,000	170,000
March 26 - April 5, 1979	2,100,000	2,700,000
April 24 - May 7, 1979	2,000,000	2,600,000
September 6 - 7, 1979	500,000	640,000
February 24 - 27, 1981	5,000	5,600
August 15 - 16, 1981	50,000	56,000
April 17 - 22, 1983	150,000	150,000
April 16 - 21, 1984	25,000	25,000
TOTALS	36,465,480	173,127,800

* Adjusted using Building Construction Index, Pg. 116 of Engineering News Record, March 24, 1984.

** Building Construction Index not available - assumed as 90 for 1905 and previous years; assumed as 95 for 1906 through 1912.

2.4 Intangible Damages

Intangible damages are associated with most flood events in the Province. However, most of the damages in this category cannot be evaluated precisely, such as the inconvenience of having to detour via Minto when the Trans Canada Highway through Maugerville-Sheffield becomes inundated, and the highway is closed for periods of time (every two years or so). Other examples of intangible damages have been those associated with school closures in Perth-Andover during March-April, 1976, and the personal anguish and stress involved with evacuations during events as occurred in the Fredericton area during April-May, 1973, when some 1000 people had to be evacuated.

The only intangible damages which could be assessed rather precisely was the loss of life. During the period under review, 45 people lost their lives during flooding events. Table 3 summarizes these deaths by event, location and cause.

2.5 Damage Trends

The figures in Table 2 also show that the total direct damages since 1869, expressed in 1983 dollars, are about 173 million dollars or about 1.5 million dollars annually on an average basis. The trends in flood damages can also be determined by examining the accumulative direct damage figures over time as shown in Figure 1. Note that the rate of damage was approximately $1.0 million/year at the turn of the century; approximately $2.0 million/year during the 1940's, and about $4.2 million/year during the late 1970's and early 1980's. Based on this data, and the fact that indirect damages are generally 50 percent of direct damages, the present amount of total damages per year is approximately $6.3 million. This is about six times greater than was the case in the late 1800's.

Many of the types of damages reported in the past could not occur today because of changes in the types of developments in the floodplain or activities along New Brunswick water courses. The rivers of the Province are no longer used for the transportation of logs and pulpwood reducing direct damages to structures as the result of jams such as at Becaguimec in 1923, as well as the loss of the logs and pulpwood itself. Intangible damages, such as the loss of life which occurred in 1933 when seven river drivers were caught by high water and drowned on the Northwest Branch, Big Salmon River, Saint John County, have also been

TABLE 3

DEATHS ATTRIBUTED TO FLOODING AND/OR FLOOD- RELATED ACCIDENTS

IN NEW BRUNSWICK

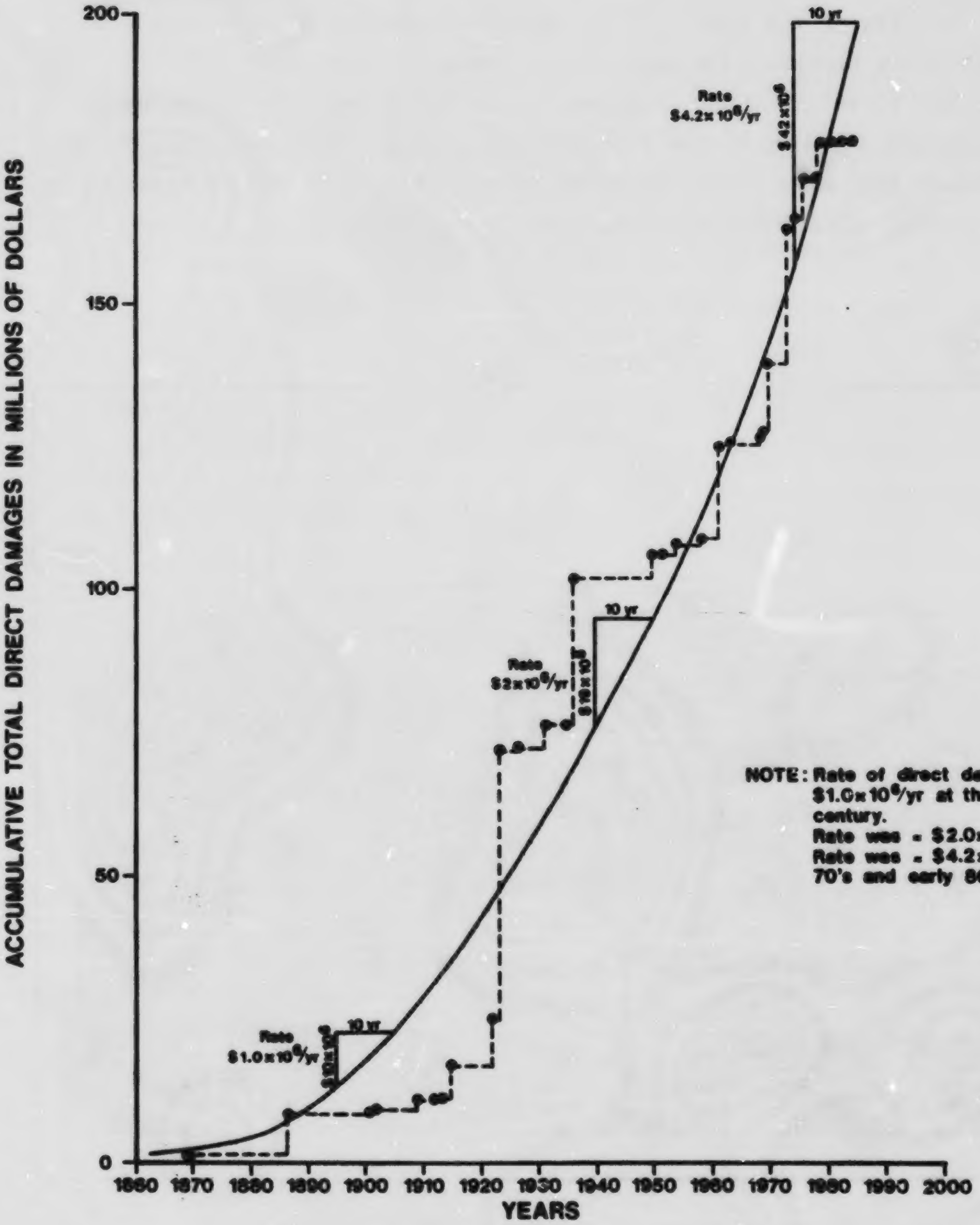
Date	Number	Location	Cause of Death
October, 1869	8	Upper Coverdale, Hillsboro and Tantramar Marshes	Drowning
March, 1902	1	Nashwaak Valley	Drowning
January, 1909	1	Chester, Albert County	Drowning
April-May, 1923	2	Magaguadavic and West Branch Musquash Rivers	Drowning
May, 1933	3	Blue River (possibly Eastern Quebec), Tracey Brook near Kedgwick, and near Edmundston	Drowning (1) Train derailments as a result of a washouts (2)
October, 1933	7	N.W. Branch Big Salmon River, Saint John County	Drowning - River drivers trapped on a sandbar.
April-May, 1944	1	Walker Brook, Campbellton	Drowning
February, 1947	2	Sheffar Brook near Elgin, Albert County	Drowning
April-May, 1947	2	Near Bristol	Train wreck due to undermining of rail line by Saint John River
April-May, 1951	1	Walker Brook, Campbellton	Drowning
April-May, 1954	1	Walker Brook, Campbellton	Drowning
April-May, 1956	2	Walker Brook, Campbellton	Drowning
April, 1958	1	Quisibis River near Green River	Drowning
May, 1961	1	Bartibog River	Drowning
May, 1969	1	Iroquois, Madawaska County	Drowning
February, 1970	3	Wirral, Queens County Nashwaaksis and Keenan Siding near Blackville	Barn collapsed due to flood (1) Drowning (2)

TABLE 3 (Cont'd)

DEATHS ATTRIBUTED TO FLOODING AND/OR FLOOD RELATED ACCIDENTS

IN NEW BRUNSWICK

Date	Number	Location	Cause of Death
October, 1970	1	Grand Falls	Vehicle accident reported to be storm related
March-April, 1976	2	Near Bath/Ste Anne de Madawaska	Train derailment as a result of a washout. Drowning (1) when vehicle left road into flooded ditch
March, 1979	1	Saint John Area	Drowning
March, 1980	1	Grand Bay	Drowning
April, 1980	1	Walker Brook, Campbellton	Drowning
August, 1983	1	Saint John	Car accident reported to be storm related
April-May, 1984	1	Lakeville Corner	Drowning when vehicle left flooded section of highway



NOTE: Rate of direct damages was = $1.0x10⁶/yr at the turn of the century.
Rate was = $2.0x10⁶/yr in the 1940's.
Rate was = $4.2x10⁶/yr in the late 70's and early 80's.

FIGURE 1

ACCUMULATIVE TOTAL DIRECT DAMAGES (IN 1983 DOLLARS) DUE TO FLOODING IN NEW BRUNSWICK - 1860 to 1984

reduced, although this type of loss could possibly occur to campers for instance.

Power developments on the major river systems have little effect on flood flows, however, developments such as the dam at Mataquac have reduced the risk of ice jams like the one that occurred at Fredericton in 1936, and which accounted for most of the damages in that year.

The advent of flood forecasting in the Saint John River Basin and flood risk mapping in the Province has probably also contributed to keeping down the costs of flood damage to moveable items and in steering new development away from the floodplain.

Photograph 2

Collapse of Highway Bridge Due to Log Jam
Becaguimec River at Hartland - 1923

Photo Credit: N.B. Provincial Archives

3.0 OVERVIEW OF FLOODS IN NEW BRUNSWICK

3.1 General

Locations, where flood damages occur in the Province, experienced inundation by water from rivers, lakes and seas many times in the years prior to being developed. In fact, it is almost a certainty that, for all those locations, water levels on many occasions exceeded those which have occurred since development. Floods which are remembered and documented, however, are those which have resulted in considerable damages, loss of life or disruption of services.

The principle causes of floods in New Brunswick may be broken down into four categories: (1) snowmelt, (2) ice jams, (3) cyclonic storms, and (4) convectional storms. Generally speaking, major floods in New Brunswick occur in the latter part of winter and during the spring months, usually resulting from a combination of (1), (2) and (3) above. In the late summer or fall months, flooding may result from cyclonic or convectional storms.

Figure 2 presents the number of reported occurrences of flooding by month over the period 1696 - 1984. This figure indicates that floods can occur in any month of the year; however, a significant proportion of events occur in March, April and May. In addition, a number of flooding events have occurred during the winter months, primarily as a result of ice jamming.

Referring to Figure 3, which displays the number of flooding events for each ten year period from 1694 to 1983 as documented in this report, it would appear that there has been a very significant rate of increase in the incidence of flooding events since the latter part of the 19th Century. Figure 4, which displays the maximum instantaneous water levels of the Saint John River at Fredericton for 1817, 1831, 1846, 1854, 1887 and maximum annual daily mean water levels for 1922 to date, indicates that there has probably been no corresponding increase in the annual flood peaks in the Province. The maximum instantaneous water levels for 1817, 1831, 1846, 1854 and 1887 have been estimated from newspaper accounts and reports (e.g. Ref. 26). The increase in the number of flooding events is, therefore, primarily attributable to increased development on floodplain lands. The rapid rise in the number of reported floods since the late 1800's may be associated with the population shifting to urban centres, thereby affecting larger percentages

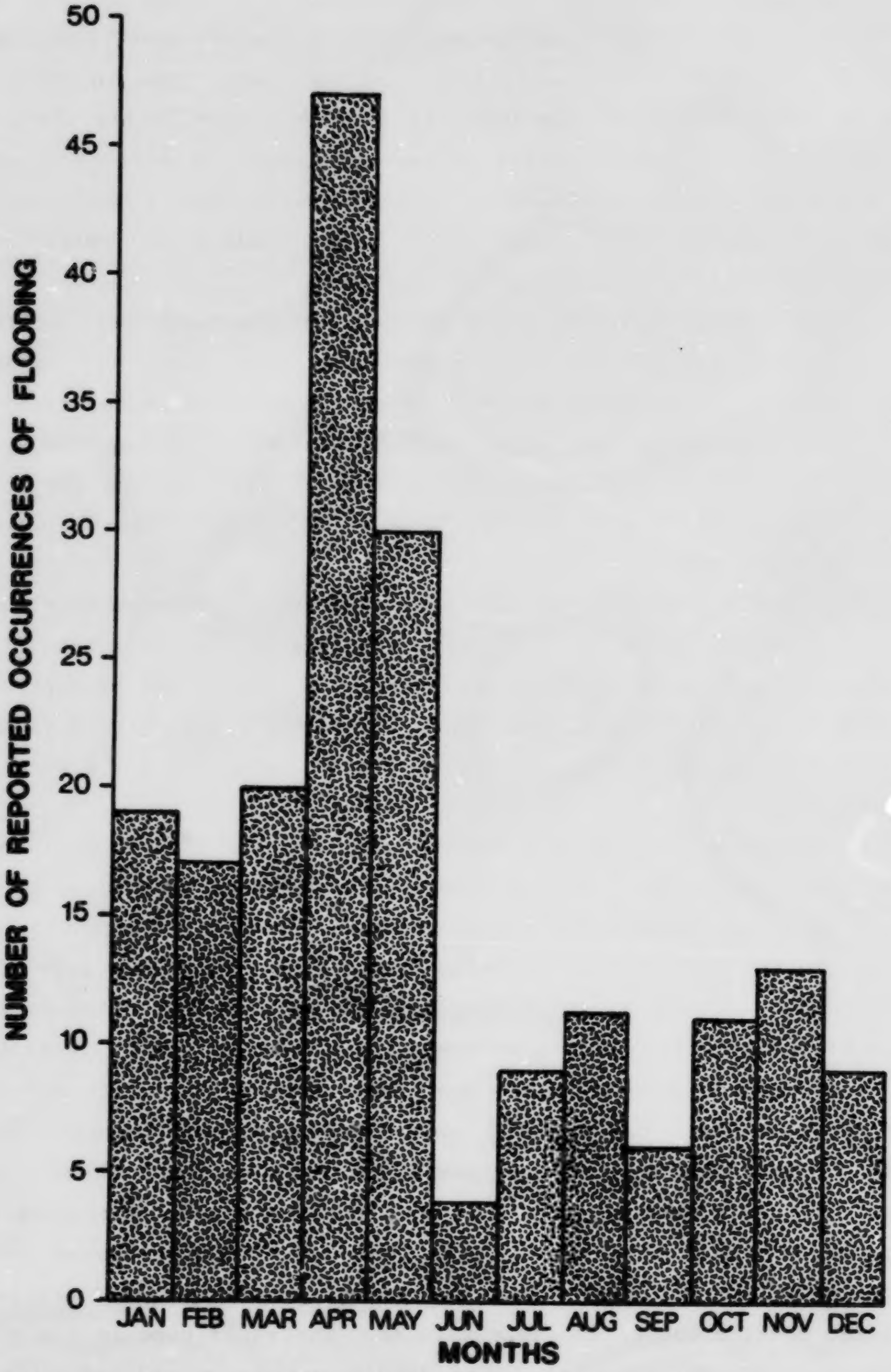


FIGURE 2

DISTRIBUTION OF FLOODING EVENTS IN NEW BRUNSWICK BY MONTH

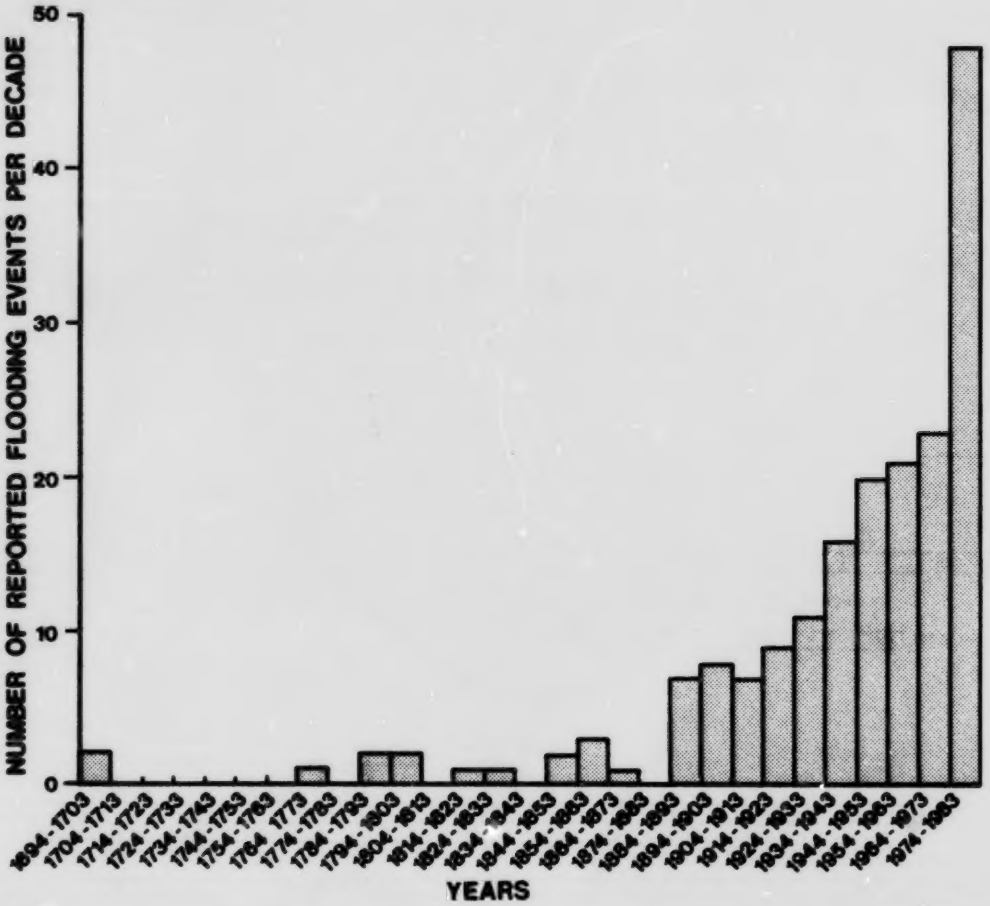


FIGURE 3

NUMBER OF DOCUMENTED FLOOD EVENTS PER DECADE FROM 1694 TO 1983

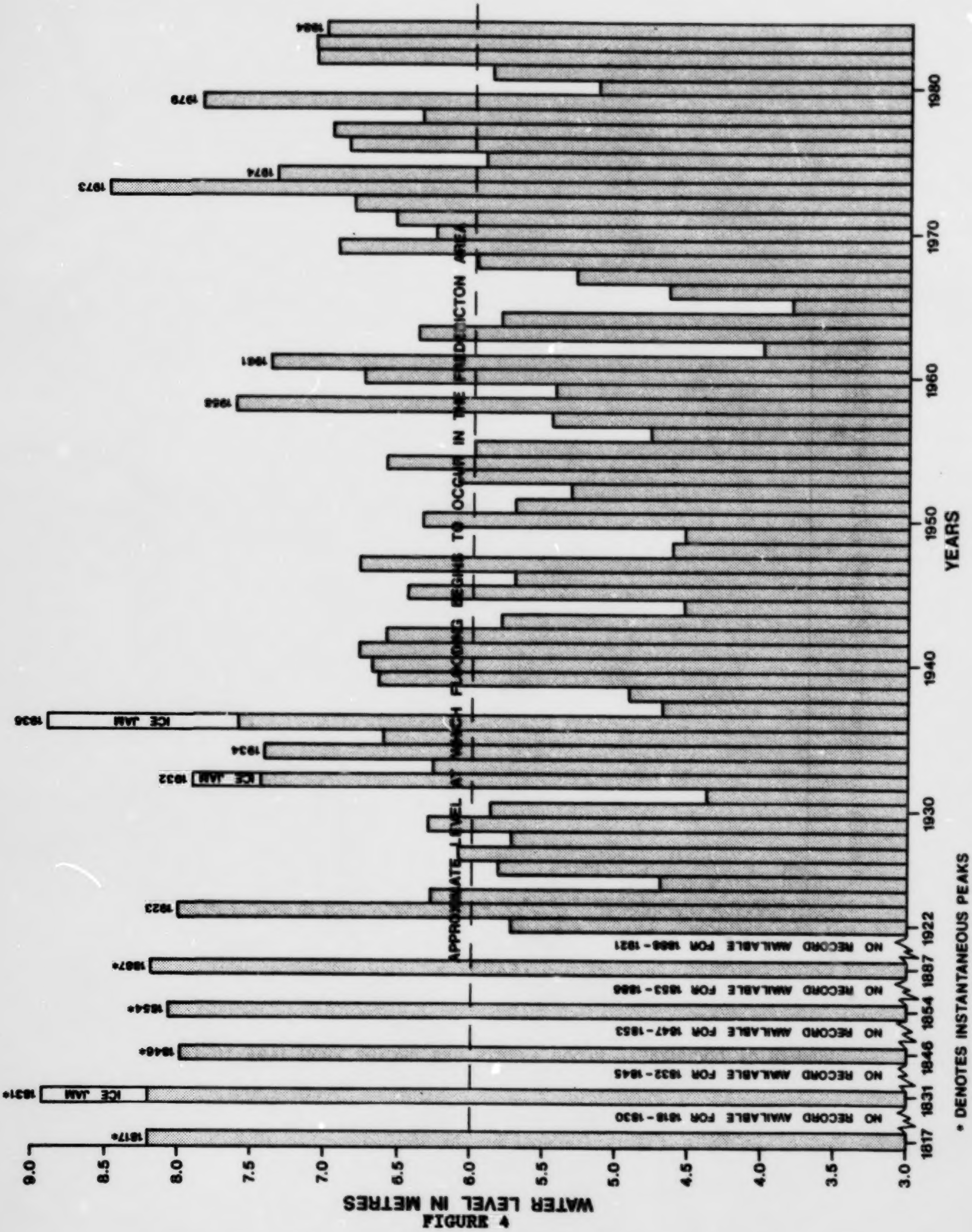


FIGURE 4

ANNUAL MIXIMUM DAILY MEAN WATER LEVELS, SAINT JOHN RIVER AT FREDERICTON, STATION 01AK003

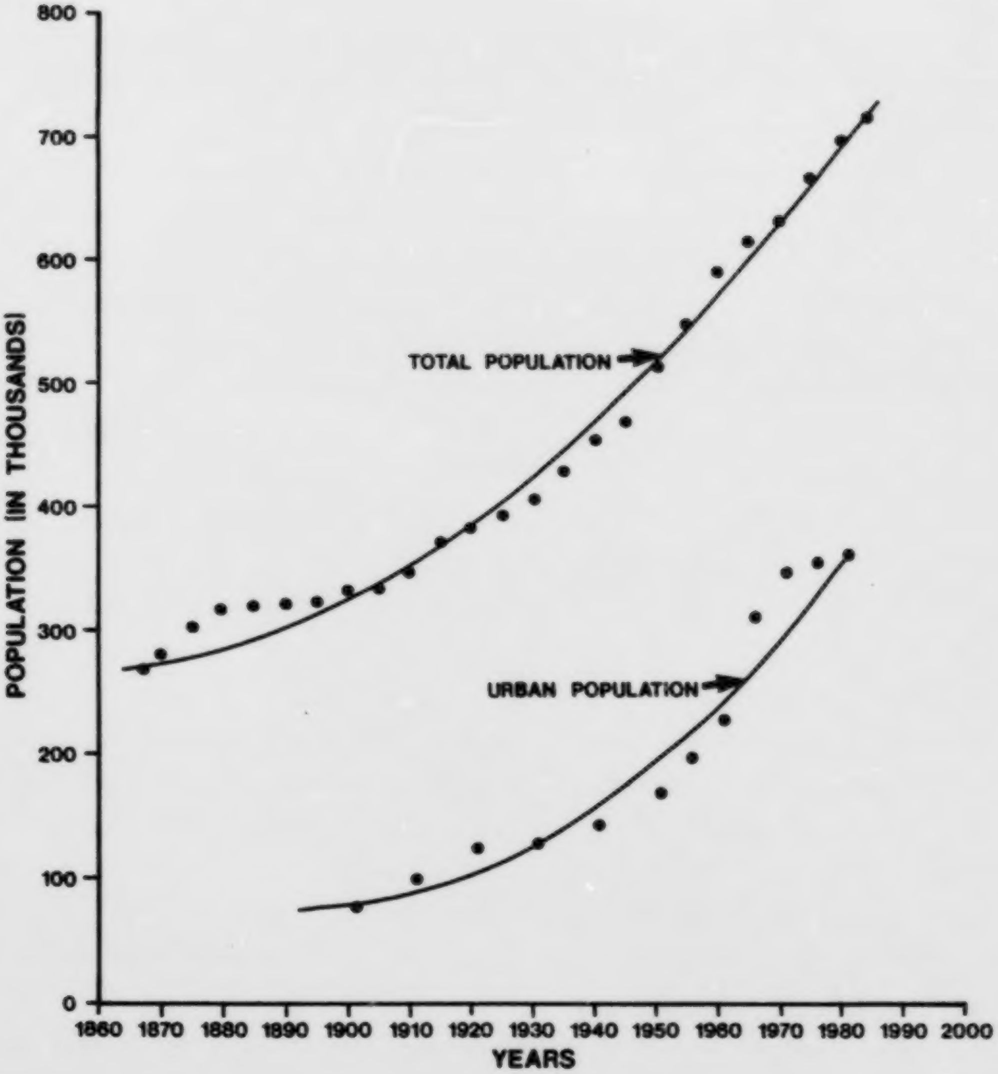


FIGURE 5

POPULATION VERSUS TIME, PROVINCE OF NEW BRUNSWICK

of the population at a given point in time. Figure 5 substantiates this by indicating an increase in population through time, as well as a pronounced shift from rural to urban living through time. About 25 percent of the residents in the early 1900's lived in urban settings; however, the proportion is nearly 50 percent today. Other potential reasons for this increase in reported flood events may be an increase in media coverage, or a lower level of research of the newspapers for the earlier years because data collection networks (i.e. streamflow and/or climatological) did not exist to aid in the selection of data to be reviewed.

Figure 6, which displays the accumulative number of deaths due to flooding or flood related accidents, also supports these findings and indicates a significant number of deaths commencing in the late 1800's.

The average annual damages (including indirect damages) between 1869 and 1984 is in excess of $2.5 million (in 1983 dollars). The magnitude of damage has been increasing rapidly since the turn of the century (as shown by Figure 1, Chapter 2) and the total damages are presently running at an average of $6.3 million per year in 1983 dollars.

Approximately 35 percent of the floods in New Brunswick are accompanied by ice jams and tend to be more destructive than the open water events. Ice jams and the subsequent breakup have resulted in considerable damage to hydraulic structures - particularly bridges. Floods have destroyed and/or damaged in excess of 475 bridges in some 58 flood events, of which at least 50 percent involved ice as a contributing factor. The 29 events involving ice jamming account for some 70 percent of the total number of bridges damaged or destroyed as a result of flooding. The most significant losses and/or damages of structures occurred during the flood events of 1902, 1909, 1923, 1936, 1961 and 1970 with the most notable being 1970 when some 32 structures were destroyed and another 124 were damaged.

The greatest amount of flood damages in the Province occurs along the Saint John River, centred largely in the vicinity of Fredericton and downstream through Maugerville-Sheffield. Other communities and river basins experience significant flooding too. The following sections examine, in some detail, the floods which have occurred in selected communities/river basins and/or regions of the Province. The overall discussions of these areas are based on the principal drainage regions

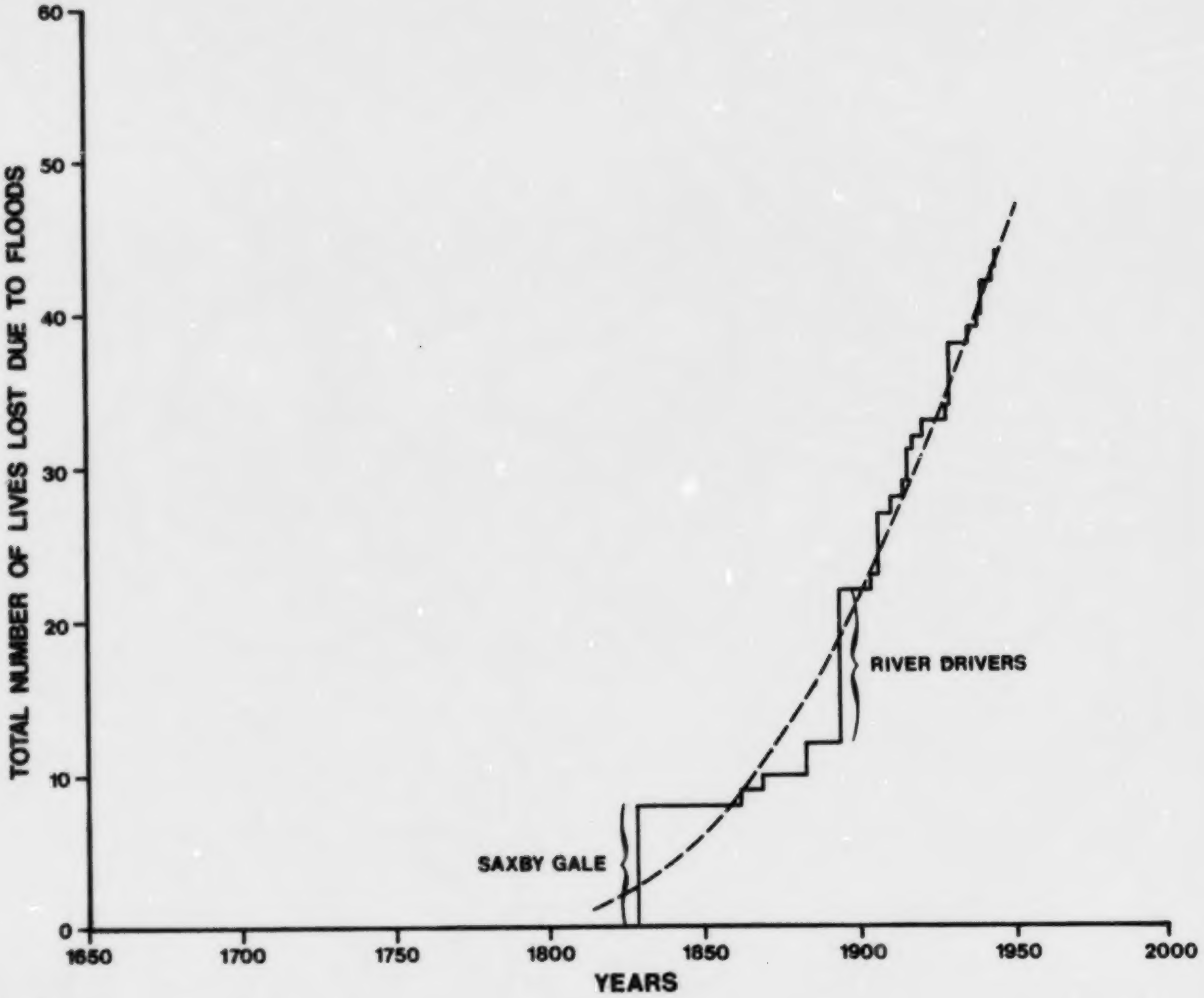


FIGURE 6

ACCUMULATIVE REPORTED NUMBER OF LIVES LOST
IN NEW BRUNSWICK DUE TO FLOODING

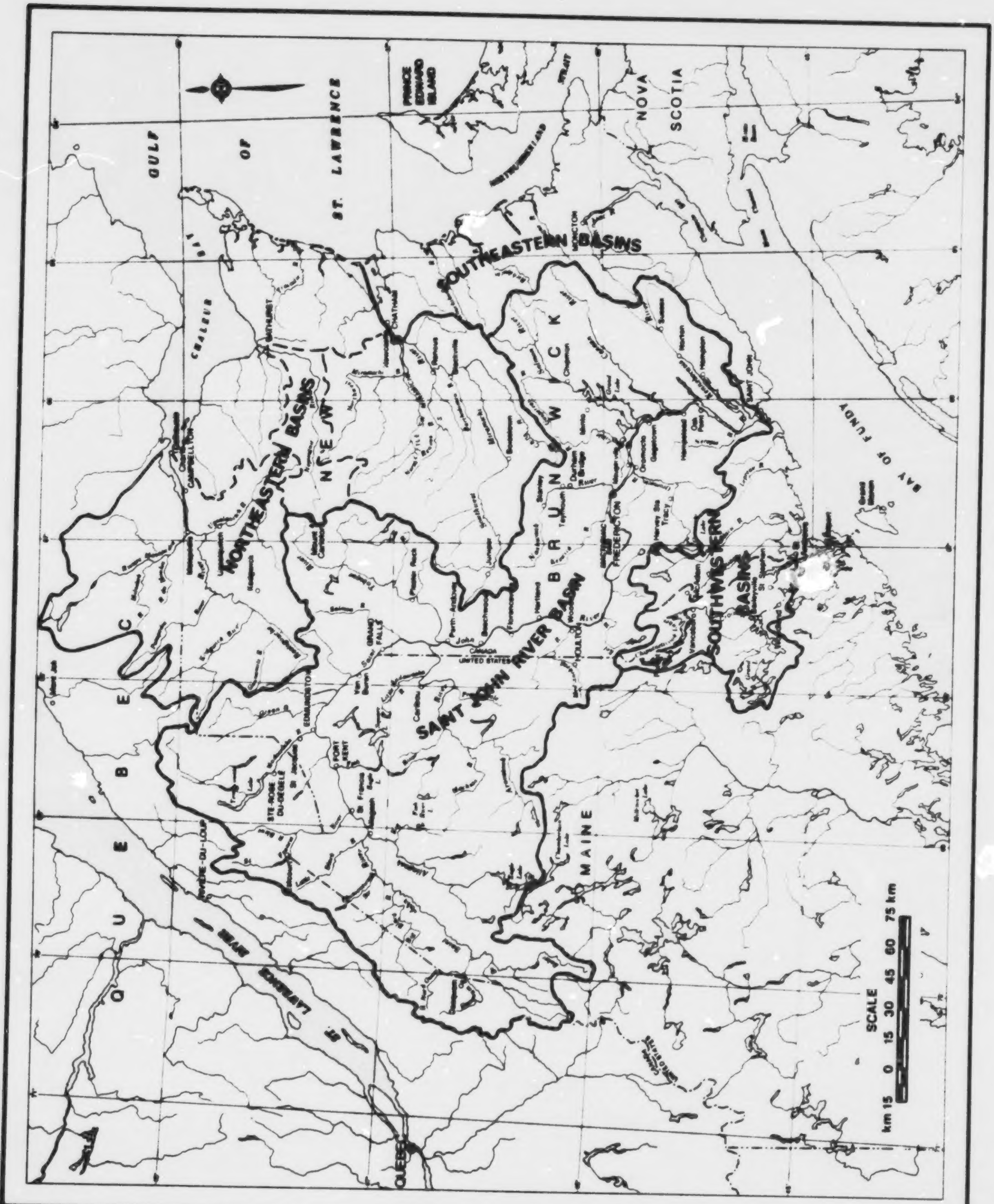

GULF OF ST. LAWRENCE
BAY CHALEUR
PRINCE EDWARD ISLAND
NORTHUMBERLAND STRAIT
NOVA SCOTIA
SOUTHEASTERN BASINS
NORTHEASTERN BASINS
NEW BRUNSWICK
SAINT JOHN RIVER BASIN
SOUTHWESTERN BASIN
BAY OF FUNDY
QUEBEC
MAINE
CANADA
UNITED STATES
CAMPBELLTON
BATHURST
CHATHAM
MONCTON
SAINT JOHN
FREDERICTON
HOULTON
GRAND FALLS
PERTH-ANDOVER
EDMUNDSTON
FORT KENT
STE-ROSE-DU-DEGELE
RIVIERE-DU-LOUP
QUEBEC
SCALE
km 15 0 15 30 45 60 75 km

FIGURE 7

PRINCIPAL DRAINAGE REGIONS IN NEW BRUNSWICK shown on Figure 7. Included is generalized information on the frequency, timing, causes and extent of floods as well as specific descriptions of the most noteworthy events.

3.2 Saint John River Basin

Throughout the Saint John River Basin, the annual peak runoff usually occurs in either April or May with about equal probability, and occasionally in March or June. It is usually the result of snowmelt accompanied by rainfall and either factor may predominate. Ice jams are frequently a complicating factor. Flood damages are sometimes caused by the backwater from these jams rather than excessive stream discharges. Structural damage tends to be higher during ice jam events, particularly to hydraulic structures such as bridges and culverts, than for flooding events that do not involve ice movement and/or jamming. Although autumn storms occasionally produce subsidiary peaks anytime between August and December, these seldom rival the spring peaks. The distribution of flooding events by month in the Saint John River Basin is displayed in Figure 8.

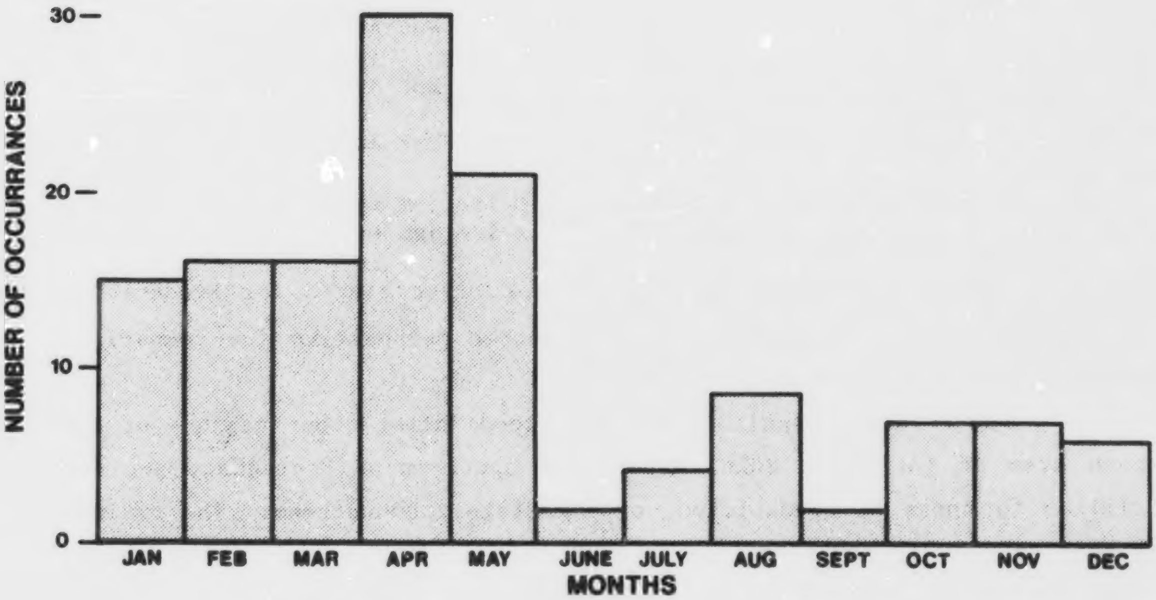


FIGURE 8

DISTRIBUTION OF REPORTED FLOODING EVENTS IN THE SAINT JOHN RIVER BASIN BY MONTH

The controlling geographic and topographic features of the Saint John River Basin have led to the concentration of development in, or in close proximity to the river valleys. During extreme flood events, the inundation of industrial, residential and agricultural properties, as well as transportation routes, such as highways and railroads, can be a serious blow to the economy of the region and, in particular, to the Fredericton-Maugerville-Sheffield area.

The maximum daily mean water levels for several of the most significant events on the lower Saint John River, since 1922, are presented in Table 4

TABLE 4

SELECTED RECORDED MAXIMUM DAILY MEAN STAGE, LOWER REACHES OF THE SAINT JOHN RIVER

	Stage in Metres above Mean Sea Level	
Year	Fredericton	Oromocto/Maugerville
1973	8.540	7.224
1923	8.047	6.645
1979	7.897	5.435
1958	7.640	Not Available
1936	7.610*	6.888
1932	7.460**	Not Available
1934	7.430	6.431
1961	7.413	Not Available

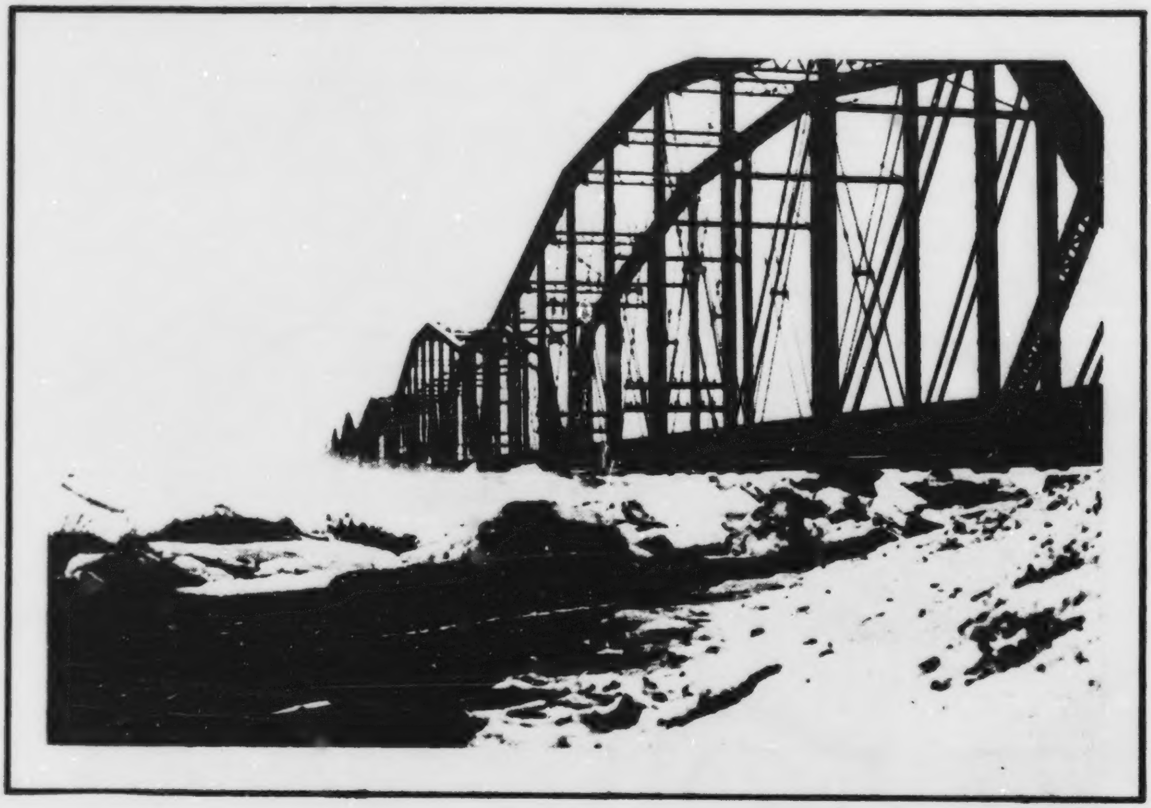
* Maximum instantaneous stage during this ice jam event was 8.90 metres.
** Maximum instantaneous stage during this ice jam event was 7.91 metres.

Figure 4 presents the annual peak river stages for Fredericton in graphical form and provides a much better perspective for comparison purposes.

The relative magnitude of past floods along other reaches of the main stem of the Saint John, especially upstream of Mactaquac, are not similar to those at Fredericton, or immediately downstream. The maximum stages at many of the locations upstream of Mactaquac, such as Woodstock, Hartland, Perth-Andover, etc., have been associated with ice jams which occur quite randomly as was the case in 1920 at Hartland and 1976 in the Perth-Andover and Woodstock areas.

The tributaries to the Saint John River have also accounted for significant flood damages over the years. Moderate flooding problems

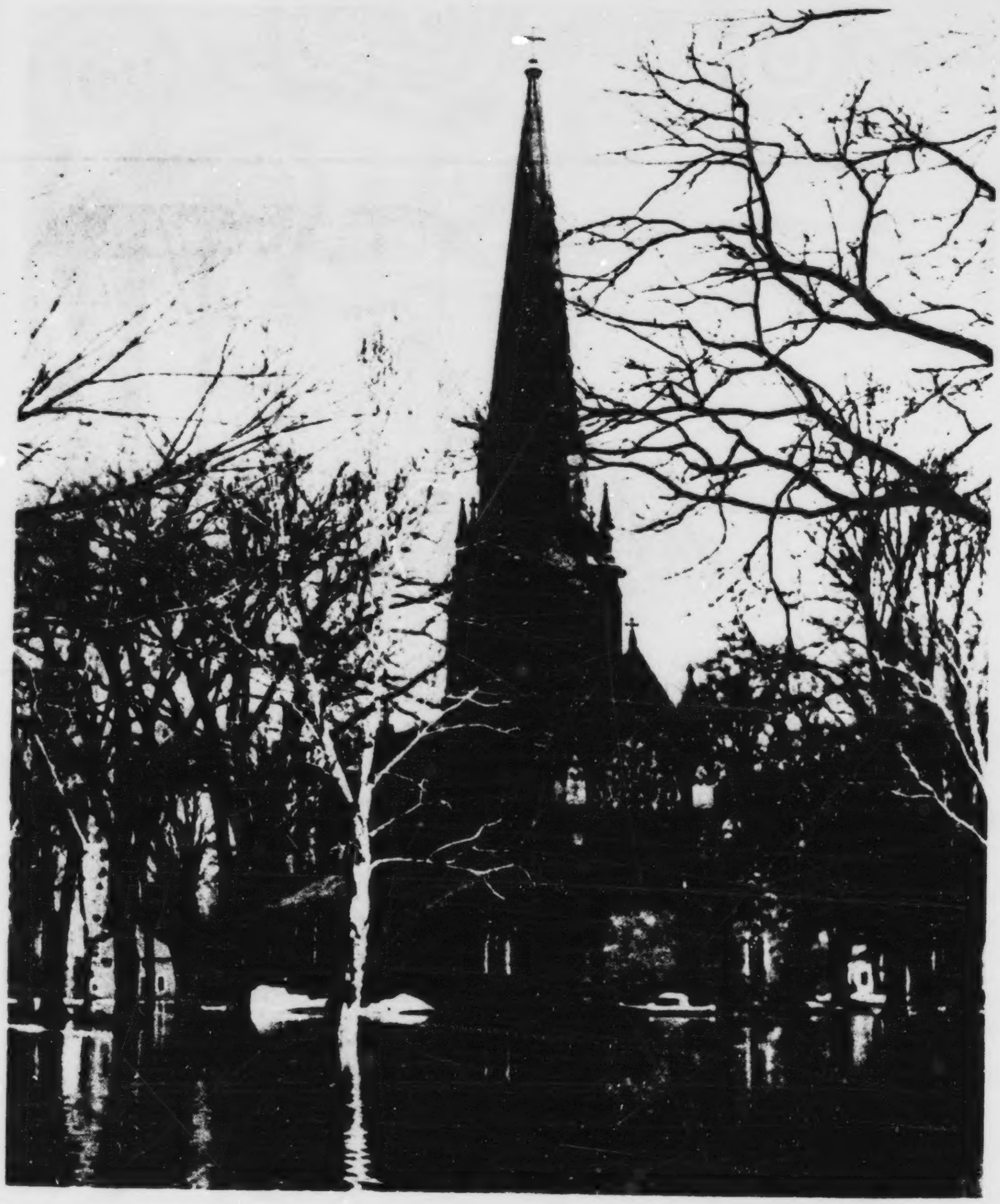
Photograph 3



C.N.R. Bridge, Fredericton. Prior to collapse, March 20, 1936

Photo Credit: N.B. Provincial Archives

Photograph 4



Christ Church Cathedral, Fredericton. March 20, 1936

Photo Credit: N.B. Provincial Archives

exist on such tributaries as the Tobique, Aroostook, Meduxnekeag, Nackawic, Keswick and Nerepis Rivers. Considerable damage has resulted to transportation systems and private property in the Nashwaak, Oromocto and Kennebecasis river valleys, especially in recent years. Ice appears to be a consistent factor along with the relatively steep gradient of the stream bed in their headwater reaches which may explain the "flashy" nature of events on these rivers.

For most parts of the basin, the discussion of flood damage and flood damage potential which follows is generally based on qualitative information plus a limited amount of quantitative data from damage reports. Two exceptions are the area in and around Fredericton and the agricultural lands in the Maugerville-Sheffield area, where previous investigations have made available extensive amounts of information.

3.2.1 Fredericton Area

As previously noted, records of stage at Fredericton are available, or have been estimated for the annual flood peaks which occurred during the years 1817, 1831, 1846, 1854, 1887 and 1922 to date; while river discharges were recorded at the Pokiok gauging station from 1919 to 1966 and below Mactaquac from 1967 to date. At Fredericton, the average annual maximum daily mean stage over the past 63 years has been 6.19 metres above mean sea level (Geodetic Datum). It has been suggested earlier in this report that flooding in the Fredericton area begins near 6.00 metres. The highest instantaneous stage on record is 8.90 metres, and this peak level was associated with the 1936 ice jam at the C.N.R. bridge. The highest recorded instantaneous stage associated with open water flooding conditions occurred in 1973 and was 8.61 metres. The corresponding streamflow of 11,000 cubic metres per second below the Mactaquac Dam is the highest on record.

Other noteworthy water levels were reached at Fredericton in 1923, 1932, 1934, 1958, 1961 and 1979. The recorded maximum daily mean flood level of the 1923 event was 8.05 metres and was the result of rainfall and snowmelt. The 1932 maximum daily mean level of 7.46 metres was attributed to a local ice jam as discharges were relatively low. The maximum daily mean peak stage in 1934 of 7.43 metres was the result of continuous rainfall for several days combined with snowmelt. The 1958 flood, again the result of melting snow and heavy rainfall, produced a maximum daily mean level of 7.64 metres at Fredericton.

The levels reached at Fredericton during the two floods of 1961 were not extraordinary in themselves, but the occurrence of two distinct floods within a two week period was very significant. The maximum daily mean level reached as a result of snowmelt by the first peak was 7.28 metres, while the second peak reached 7.41 metres.

The 1979 maximum mean daily flood stage was 7.90 metres and has only been exceeded twice since 1922.

Prior to the beginning of stage records, there is very little information on flood levels, but newspaper accounts give some indication that other major floods occurred on the main stem of the Saint John River in 1817, 1831, 1846, 1854 and 1887 (Ref. 12). It was reported that the instantaneous peak during 1887 at Fredericton was "13 inches higher than that reached in 1923." Comparative descriptions in the newspaper accounts suggest the peak stage in 1887 was a "few inches higher than that reached in 1854, but lower than the 1831 level". It is likely that the maximum stages in 1817 and 1846 were similar to those reached in 1979 at Fredericton (Ref. 26).

Substantial damages have occurred in Fredericton and the surrounding municipalities. The first record of flood damage was that of a store being swept away by ice in 1768. A considerable portion of past damage has been associated with ice jams such as that which caused the maximum instantaneous recorded stage of 8.90 metres in 1936. With the construction of the Mactaquac Dam, the occurrence of such ice jams has virtually been eliminated. Major ice floes, which previously passed down the Saint John River, are now held back by the dam and headpond.

Open water flooding events have also resulted in significant damages in the Fredericton area. During the 1973 event, the economic costs in the greater Fredericton area were reported to be in the order of $5.2 million, with total compensation of about $3.2 million being paid out by the Federal and Provincial Governments (Ref. 14). A total of some 540 structures were inundated or surrounded by water during the 1973 event in the Fredericton area.

Recent work (Ref. 38 and 39) gives a more realistic picture of the potential damage by floods in the greater Fredericton area. These data are presented in Tables 5 and 6.

TABLE 5

Potential Damage by Floods of Varying Frequency in the Greater Fredericton Area*

Frequency of Floods	Cumulative Number of Structures Flooded or Surrounded					
	Houses	Mobile Homes	Businesses	Institutional	Agricultural	Other
20 year	40	3	19	4	8	6
100 year	144	18	33	8	16	11

* The data set presented is for the main stem of the Saint John River from Springhill to Upper Gagetown.

However, if the flood stage increases by 0.2 metres above that for the selected frequency levels, the number of structures which will sustain potential damage increases dramatically as shown in Table 6.

TABLE 6

Potential Damage by Floods of Varying Frequency in the Greater Fredericton Area as of 1983 with Levels Increased by 0.2 Metres

Frequency of Floods	Cumulative Number of Structures Flooded or Surrounded					
	Houses	Mobile Homes	Businesses	Institutional	Agricultural	Other
20 year	83	5	27	6	9	8
100 year	190	29	39	7	18	18

A comparison of these tables demonstrates the sensitivity of the area to flood damage potential.

3.2.2 Maugerville-Sheffield Area

The Maugerville-Sheffield area experiences the greatest amount of agricultural damage in the basin. The soils are alluvial and among the most fertile in the Province. It is ironic that the fertility of the land has largely been as a direct result of past floods. In recent years however, an increase in residential development has also occurred.

Photograph 5

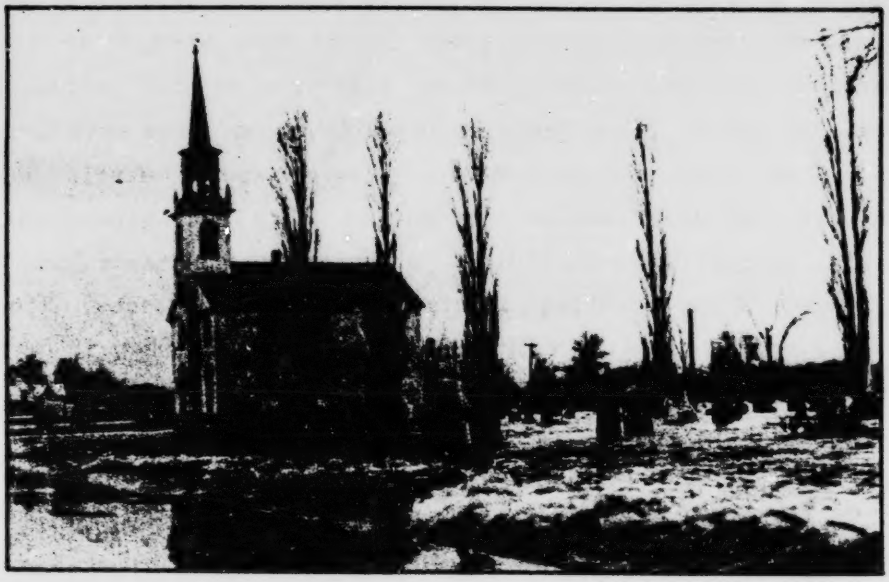
Floodwaters Surrounding Residence near Upper Maugerville
May 1, 1979, at 8:05 a.m.

Photograph 6

Floodwaters over Trans Canada Highway at Dutch Drive-in
Restaurant and Motel, May 1, 1979, at 8:25 a.m.

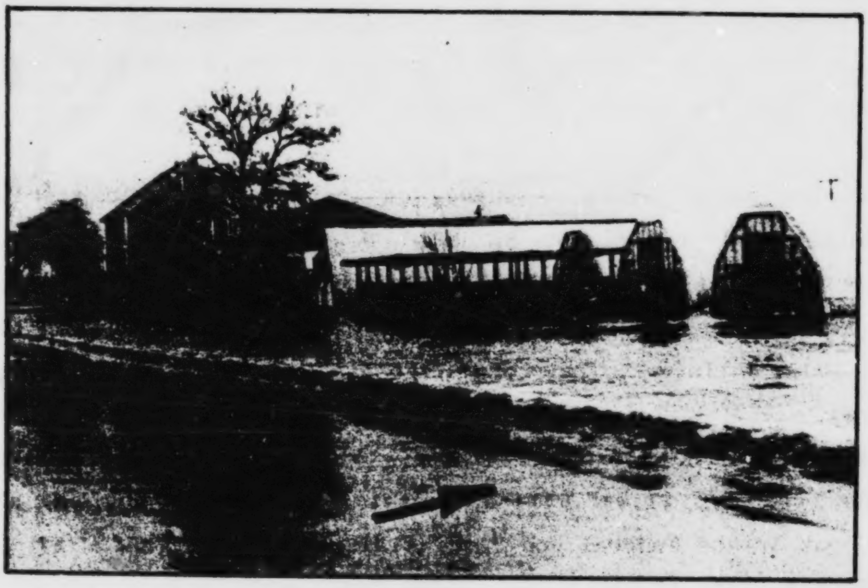
Photo Credit: Environment New Brunswick

Photograph 7



Maugerville United Church on Trans Canada Highway
May 1, 1979, at 9:28 a.m.

Photograph 8



S and F Green Houses, Sheffield, May 1, 1979, at 9:42 a.m.

Photo Credit: Environment New Brunswick

Flood damage in the Maugerville-Sheffield area occurs when flood crests exceed a level of 6.0 metres above mean sea level. Below this level, some wasteland and pasture lands in the back country are flooded, but no serious problems occur. At an elevation of 6.0 metres, flood waters begin to inundate the Trans Canada Highway and flow onto low lying farmlands. Some land damage (erosion, gravel and/or debris buildup) occurs due to the overflow, but is not normally extensive. There is considerable damage to outbuildings and fences. Damages to fences usually results from floating debris and, in some cases, ice. In addition to flooding directly from the Saint John River when it overflows the Trans Canada Highway, this area also experiences backwater flooding from the Grand Lake system.

Many homes and buildings in this area are built on mounds as a means of flood proofing and therefore do not suffer appreciable damage except in the most severe floods.

Considerable damage to roads and highways has been reported during past floods. The Trans Canada Highway has frequently been closed as a result of flooding and/or floating debris. This frequent closure gives rise to substantial indirect losses by adding an additional distance of some 25 to 30 kilometres to travel when traffic is forced to re-route via Minto. Indirect damage also occurs because of reduced crop production. When a late spring runoff occurs, farmers are prevented from getting onto the fields at the optimum time and, as a result, crops suffer.

In the early 1950's, a survey of the Maugerville-Sheffield area was conducted by officials of the New Brunswick Department of Agriculture. An estimate made in 1953 placed annual flood losses at $190,000 (Ref. 41). This equates to approximately $1 million annually in terms of 1983 dollars. The total economic cost of damages in the agricultural sector during the April-May 1973 event in this area was reported to be in the order of $420,000, while the total economic cost was in the order of $1,942,633, with total compensation of $1,631,508 being paid out by the Federal and Provincial governments (Ref. 14).

3.2.3 Middle Reach of the Saint John River

Based on available information for recent floods, it does not appear that damage potential is as severe along the 280 kilometre reach of the Saint John River between Fredericton and Edmundston. During the floods of 1961 and 1970, the damage on the main stem and tributary streams in this area amounted to only about 10 percent of the damages reported in the basin. Most of these were to the transportation sector.

The total economic costs of the April - May, 1973 event has been reported to be in the order of $2,370,000, of which $1,330,726 was paid out in compensation by the Federal and Provincial governments (Ref. 14).

Although damage estimates are not available, newspaper reports on earlier floods indicate more serious conditions in the past throughout this area. In 1846, 1887 and 1923, many bridges on tributary streams were destroyed. Several reports exist of severe washouts of railway embankments, one of which occurred at Bristol in 1947 causing a train wreck leading to two deaths. A similar train wreck, near Bath in 1976, led to the death of a brakeman.

Basement flooding occurs at Edmundston, Woodstock, Bristol, Perth-Andover, Hartland and possibly other locations during most flood events. However, the more serious over-bank flooding events are coupled with ice jams. In the case of the 1976 event, some 200 residents, a 90-bed hospital and a senior citizens complex were evacuated in Perth-Andover.

3.2.4 Upper Reach of the Saint John River

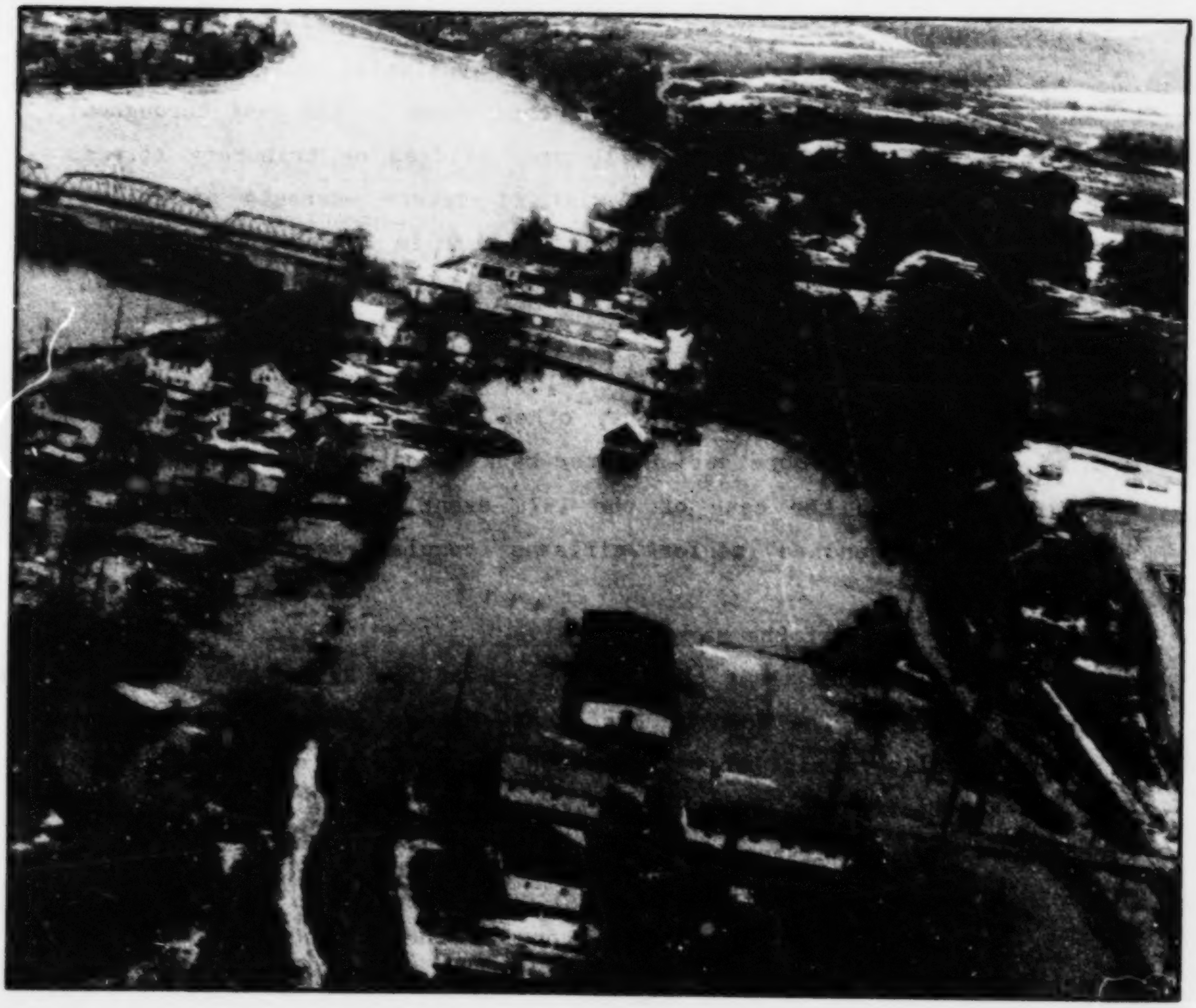
Flood damages along the upper reach of the Saint John River are largely confined to the Town of Fort Kent, Maine. Flood damages in New Brunswick usually consist of bank erosion, the loss of some agricultural soil and the destruction of transportation systems. The most significant floods have been associated with ice jams.

3.2.5 Nashwaak River Valley

The Nashwaak River Valley is one of the areas of highest flood damage potential in the Province. In terms of overall direct damage, this area accounted for about 45 percent and 35 percent of the total economic losses in the Saint John River Basin during the floods of 1961 and 1970 respectively. The rainfall preceding both of these floods was concentrated on or near the drainage area of the Nashwaak River. Ice and ice jams are also considered to be a contributing factor during many of the flood events in this valley.

In 1970, damages along the Nashwaak River amounted to 70 percent of the New Brunswick Electric Power Commission's total losses (mainly transmission lines) in the Saint John River Basin, 38 percent of the

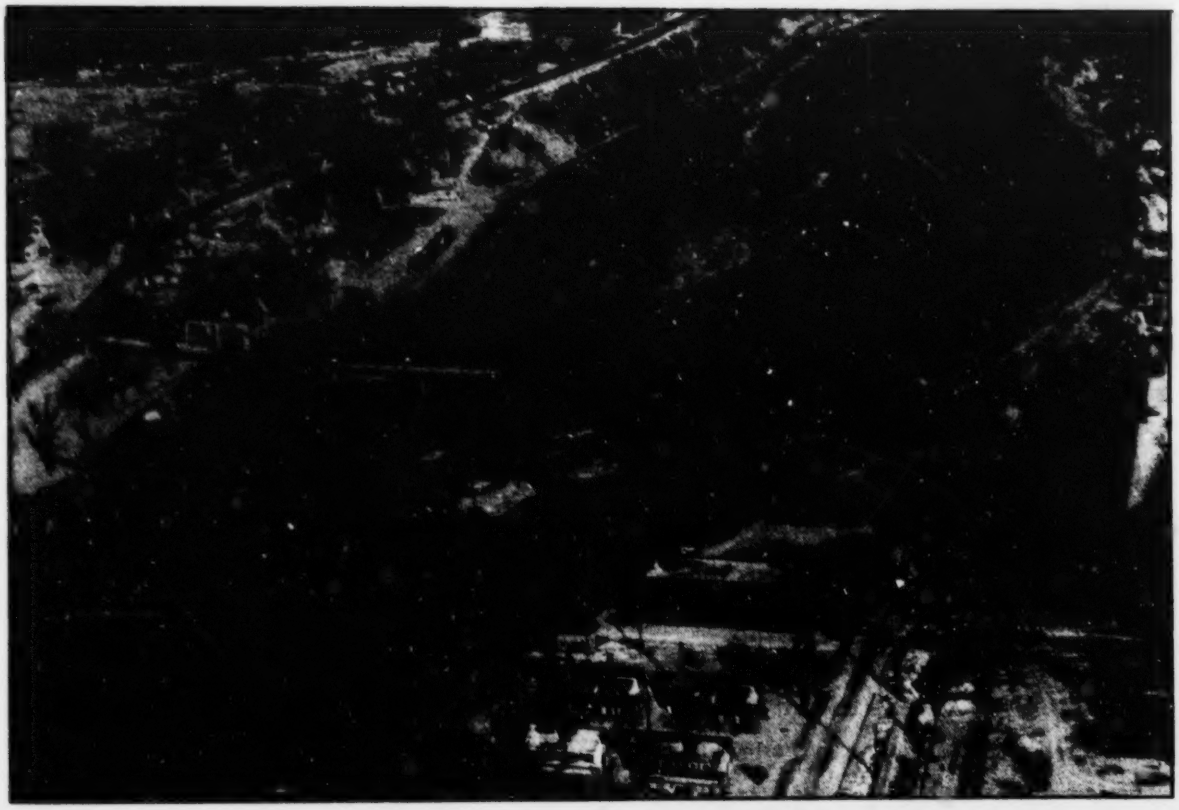
Photograph 9



Flooding in Perth-Andover, April 4, 1976

Photo Credit: N.B. Provincial Archives

Photograph 10



Marysville Bridge on the Nashwaak River after the Flood of February 4-5, 1970.

Photo Credit: N.B. Provincial Archives

private property losses, 40 percent of the bridge damage and 17 percent of the total highway damage. Damage in the Nashwaak Valley occurs in the 50 kilometre stretch between Stanley and the confluence with the Saint John River. Newspaper reports over the years indicate numerous small dams breaking, bridge and railway washouts, submerged highways and utility wreckage throughout the several villages along this reach.

3.2.6 Oromocto River Valley

The Oromocto River Valley is also subject to fairly heavy flood damages. This area's vulnerability stems from the considerable extent of low flat land which becomes submerged in times of flood. In terms of overall direct damage, the Oromocto River accounted for 21 percent of the total losses in the Saint John River Basin during the 1970 flood, and 10 percent of the 1961 losses.

Bridge damage appears to be the category to which the largest estimates are attached. In 1970, for example, $225,000 in bridge damages were reported along the Oromocto. This was some 20 percent of the total bridge damage in the Saint John River Basin. Also in 1970, 14 percent of the New Brunswick Electric Power Commission's total for the Saint John River Basin, 35 percent of the private property damages, and 16 percent of the highway damages were reported from the Oromocto River Basin.

The total economic costs of the April-May, 1973 event has been reported to be in the order of $204,654, of which $166,005 was paid out in compensation by the Federal and Provincial governments. A total of 63 homes were affected (Ref. 14).

Transportation delays due to bridge and highway washouts are commonly reported throughout newspaper accounts as the result of widespread flooding from the mouth to Fredericton Junction. The majority of the reports of flood damages come from Blissville, Hoyt and Bailey.

3.2.7 Kennebecasis River Valley

The Kennebecasis River Valley has experienced flooding since at least 1854. The lower portion of the Valley quite often experiences flooding as a result of backwater from the main stem of the Saint John River. The upper portion of the basin (above Norton) is quite frequently plagued with ice jams and associated flooding. However, flooding conditions also result from extreme precipitation events as well, and a number of these events may even be termed "flash floods", such as the one that occurred during November 1854.

Probably the most severe flooding along the Kennebecasis River occurred during March-April, 1962. This event had little effect on any other portion of the Saint John River Basin. The majority of the reports of flood damages come from Hampton, Norton, Apohaqui, Sussex and Sussex Corner. The flood of January 1981 has rivalled the 1962 flood in recent years.

3.2.8 Other Tributaries of the Saint John River

Tributaries along which less severe damages occur are the Aroostook, Tobique, Meduxnekeag, Keswick and Nerepis Rivers. Other tributaries also occasionally suffer damages such as highway and railroad washouts, basement flooding and stream bank erosion, but are usually quite insignificant and scattered in terms of time and location.

Several bridges have been washed out at Plaster Rock and Arthurette on the Tobique River. A significant portion of the total provincial damages to private property (6 percent) occurred along this river in 1961.

Damages along the Meduxnekeag have been reported to be dam washouts as well as destruction and/or damages to highways and bridges. The area of particular concern here is Woodstock, where the effects of the Meduxnekeag River and the Saint John River are combined, and occasionally cause significant damages to waterfront property such as during the ice jam flood of 1976.

Reports from the Keswick Valley indicate some bridge washouts and crop damage near the mouth of the river. Disruption of transportation is probably the major concern to local residents.

Damages in the Nerepis River Valley consist mainly of railroad washouts in the vicinity of Welsford.

Flooding along the Aroostook River has caused considerable damage to centres in Maine including Fort Fairfield and Presque Isle; however, very little damage occurs in New Brunswick.

3.3 Northeastern River Basins

The climate of the Northeastern Basins is similar to that of the Saint John River Basin above Fredericton. The only dissimilarity apparent is the tendency for a little heavier snowpack at the end of winter.

Spring runoff may occur anytime between the first of April and mid-May. In most years, the annual peak stage occurs at the height of the spring runoff, usually accompanied by some rain. Occasionally, an intense rain late in the season will raise the rivers above spring levels. Rainfall peaks of this type, which may occur anytime between mid-May and November, have produced significant floods in most of the basins in the region.

The distribution of flood events by month for two of the larger basins, i.e. the Restigouche and Miramichi, are presented in Figures 9 and 10.

In the northeastern portion of the Province, significant flooding has occurred in 1887, 1923, 1936, 1958, 1961, 1970, 1973, 1976 and 1979. About 50 percent of these events had ice as a complicating factor.

Some late summer or fall events have been attributed to hurricanes or easterly gales which combined rainfall, high tides and winds to produce coastal and estuarial flooding.

3.3.1 Restigouche River Basin

In the Restigouche River Basin, the majority of, and most severe flooding occurs along the Matapedia River, a tributary in the Province of Quebec. However, in the New Brunswick portion of the basin, the communities most affected are Campbellton, Tide Head, Flatlands and the Robinsonville areas. In most of these areas, the problems recorded in newspaper accounts are of damage to summer camps, inundation of highways and the flooding of agricultural land adjacent to rivers. The Restigouche is tidal for about 40 kilometres of its length, and navigable for ocean-going vessels for about 30 kilometres. It is in this lower portion of the basin that flooding results from high tides and winds combining with high runoff and/or ice runs. The effects of this flooding are predominantly felt in the communities of Flatland, Tide Head, Atholville, Campbellton and, to some extent, Dalhousie. On occasion, ice breakers have been used to relieve the problems to some extent such as was the case in May 1974.

During the April-May 1973 event, some 5 percent of the total provincial damages occurred in the Restigouche River Basin.

It should also be noted that six lives have been lost by drowning during flood events along Walker Brook, Campbellton, since 1944.

3.3.2 Miramichi River Basin

The Miramichi River Basin is the second largest river basin in New Brunswick. The Miramichi River comprises two main tributaries - the

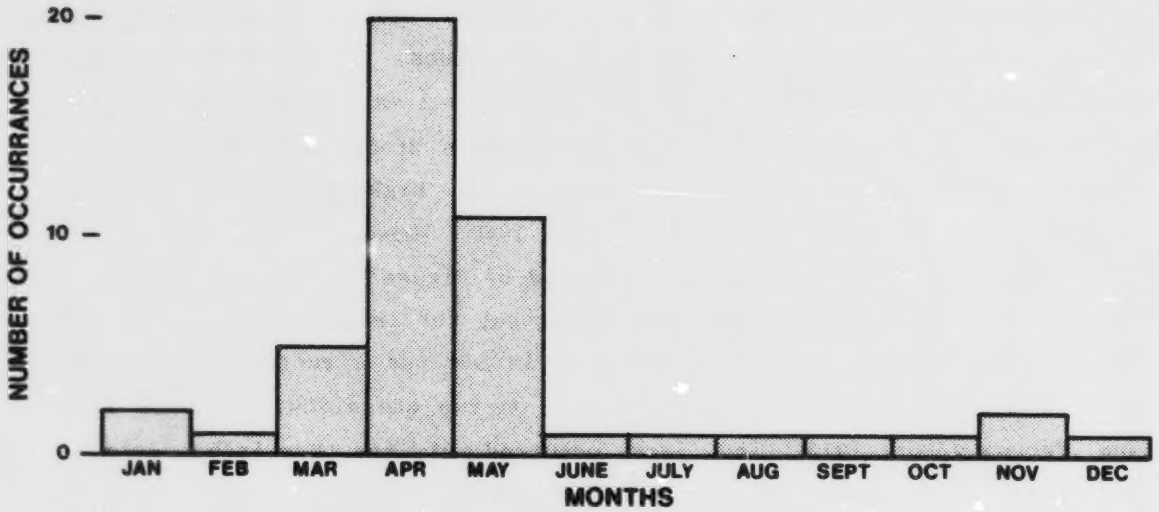


FIGURE 9

DISTRIBUTION OF REPORTED FLOODING EVENTS IN THE RESTIGOUCHE RIVER BASIN BY MONTH

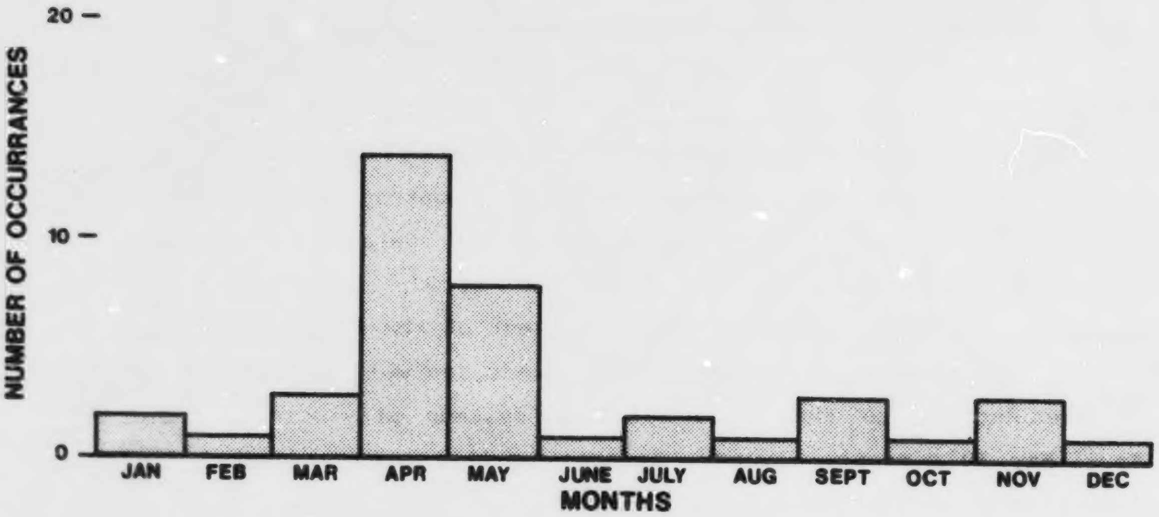


FIGURE 10

DISTRIBUTION OF REPORTED FLOODING EVENTS IN THE MIRAMICHI RIVER BASIN BY MONTH

Northwest and Southwest Branches - and is tidal throughout some 26 kilometres from the mouth.

Flood events in this basin are generally produced by one of two sets of factors. From January to late May, heavy precipitation and snowmelt can produce significant flood conditions. If these factors are aggravated by ice jams the situation is worsened as was the case in 1936 and 1970. The period from June to December is prone to storm surges or storm tides with a strong northeast wind, high tides and intense precipitation as happened in September, 1940. However, flooding occurs most frequently in the spring as indicated by Figure 10.

Ice jams are not uncommon throughout the length of the Miramichi and its tributaries, and have resulted in serious structural damage to bridges and other hydraulic structures. On two occasions, March of 1936 and February of 1970, ice jams occurred at the Morrissey Bridge, Newcastle, as a result of ice on the two main branches of the Miramichi breaking up and running simultaneously. During the 1970 event, ice breakers were required to assist in relieving the problems. In 1936, the ice jam was broken using dynamite.

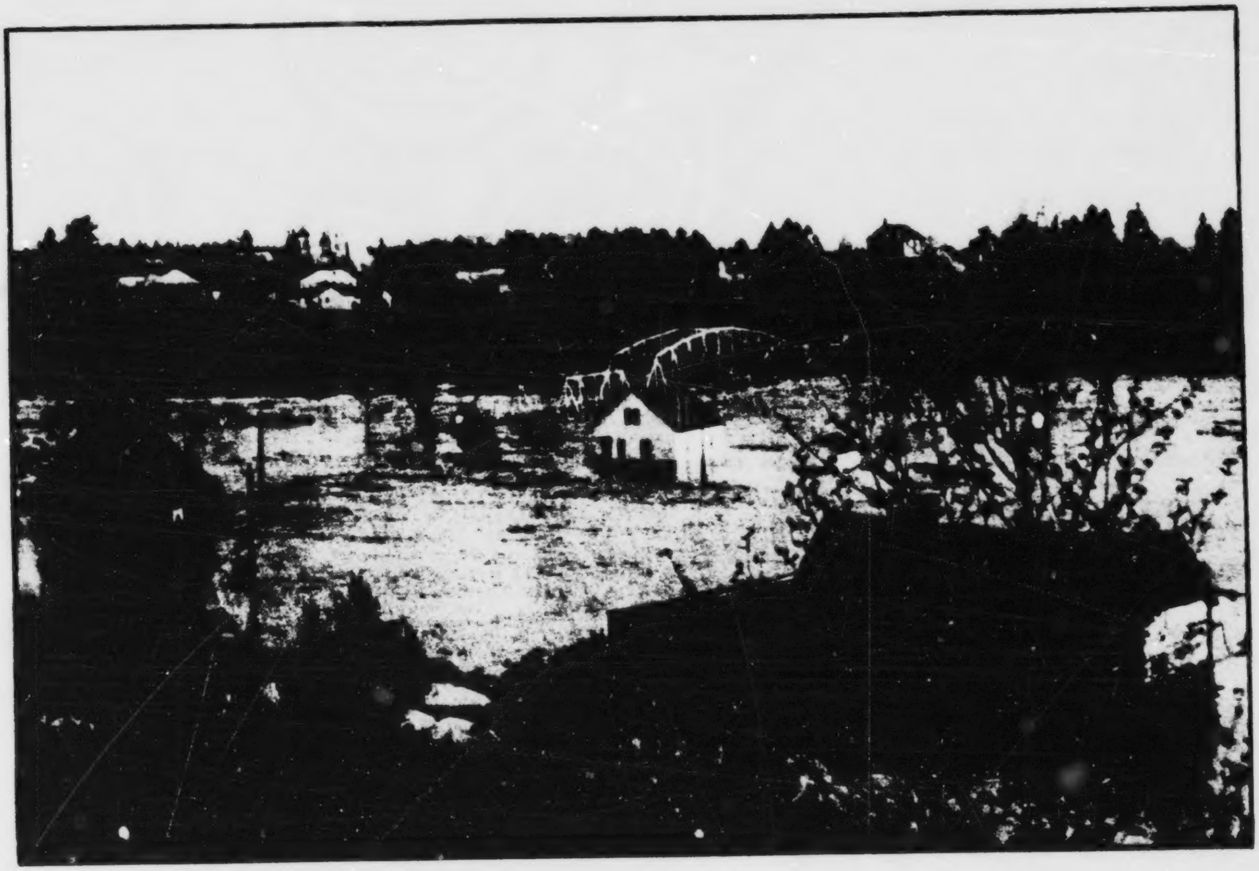
Precipitation induced, snowmelt floods of significance have occurred in 1923, 1961 and 1973.

The documentation of flood damages for the Miramichi River Basin is far from being complete. The information available, however, indicates that damages to highway structures have been significant. Over time, many of these structures have been replaced with structures which appear to be capable of conveying the high water and ice more efficiently.

During the two floods of May 1961, property damage was about 22 percent of the provincial total, while damages sustained by highways and bridges were in the order of 10 percent of the total reported. The February 1970 flood accounted for 30 percent of the damage to bridges, 10 percent of the damages to highways and roads, as well as about 16 percent of the damages to the hydro electric systems provincially. For the April-May 1973 event, however, damages in this area accounted for only four percent of the total flood damages.

The areas most frequently affected by flooding in the Miramichi River Basin are: Newcastle, Boistown, Doaktown, Blackville and Juniper.

Photograph 11



View of Blackville on the Little Southwest Miramichi River,

May 28, 1961

__Photo Credit:__ W. Mergerean, Blackville

3.3.3 Other River Basins in Northeastern New Brunswick

Several other rivers in this region have experienced flooding. The flooding has not been very significant, but warrants a mention for completeness.

The Village of Eel River and the lands around Eel River Bay are periodically subject to flooding. Erosion and ice jams typify the problem in the Village while high tides are often the cause of the flooding in the Bay.

The Nepisiquit River and its tributaries do not exhibit any significant flooding problems. The watershed is relatively steep with many falls and rapids throughout its length. On occasion, ice jams have resulted in the minor flooding at a few locations.

The only other river which may have potential for significant flooding is the Tetagouche. A severe rainstorm over this basin, in June 1933, resulted in a flood peak higher than those in this basin on either 1923, 1958 or 1961 (Ref. 9). However, no documentation of damages associated with this event has been uncovered in research of the newspaper accounts to date.

3.4 Southeastern River Basins

In the Southeastern Basins, the most significant flood of record is that of April 1962. This event, primarily the result of heavy rainfall (in excess of 100 millimetres), caused extensive flooding in the Moncton and Sackville areas. The maximum daily discharge recorded at the hydrometric station on the Petitcodiac River near Petitcodiac was 210 m^3/s on April 2, 1962, and represents the extreme recorded for the period of record at this station.

In addition to floods induced by heavy rain, this portion of the Province also experiences flooding as the result of storm tides and/or storm surges, such as those which occurred during the Saxby Gale of 1869 or, more recently, the gale (or surge) of September, 1979. The distribution of flooding events by month for the Southeastern Basins is shown in Figure 11.

3.4.1 Petitcodiac River Basin

Reported flooding in this Basin dates back to October 1869, when property damage, railway damage and washouts amounted to an estimated $1.6 million for this region (expressed in 1983 dollars). Most flooding

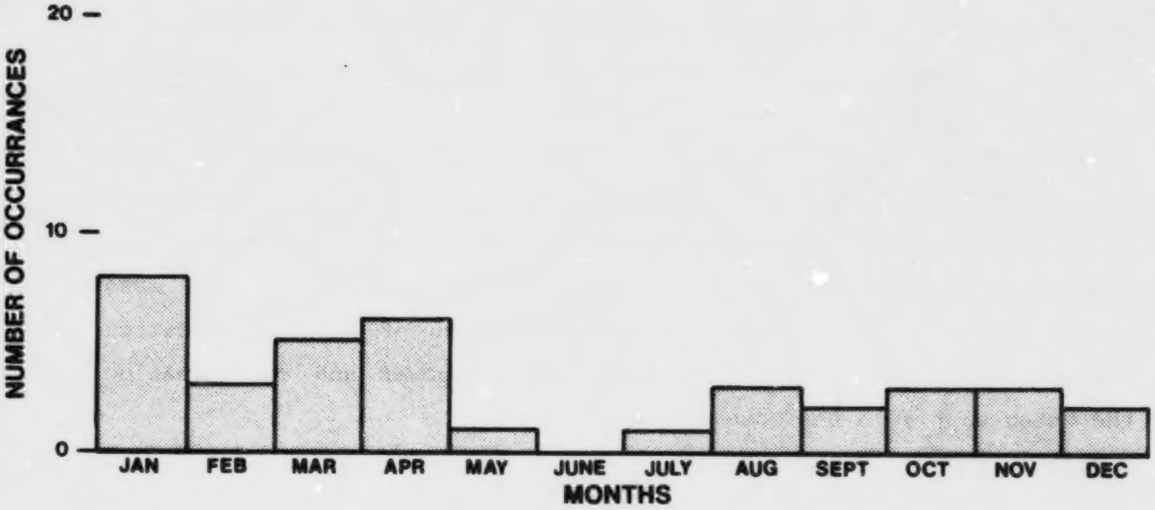


Figure 11

DISTRIBUTION OF REPORTED FLOODING EVENTS
IN THE SOUTHEASTERN BASINS BY MONTH

in this Basin is to the agricultural and transportation sectors with some minor damage to structures.

In the Moncton area, silt deposited during tidal cycles has been reported to be a main source of concern as it constricts the volume of water storage which can be accommodated during periods of high flows and/or storm tides. As well, underdesigned storm sewers have also been cited in newspaper accounts as a major factor contributing to flooding in the Moncton/Riverview area. Flooding on the Petitcodiac River upstream of Moncton does not seem to be as frequent since the construction of the causeway at Moncton in the 1960's.

3.4.2 Tantramar River Area

The Tantramar area is essentially a wide expanse of marsh. The main waterways in this area, which have a known history of flooding, are the Tantramar, Aulac and Missaguash Rivers as well as Frosty Hollow Brook, all of which are affected by tides. Morice, Jolicure and Frosty Hollow Lakes have also risen over their banks to cause some flooding.

All three rivers, as well as Frosty Hollow Brook, are dyked throughout the reaches adjacent to settlements. These dykes vary in height from one to two metres.

Reported flooding in the area dates back to November 1759, when a "Saxby" type storm inundated the marshlands. During the Saxby Gale in October 1869, barns, fences, dykes and wharves were destroyed. Houses were inundated and crops lost, and at least three people drowned.

In April 1962, extensive flooding occurred in the Sackville area as a result of high winds, high tides, snowmelt and heavy rain occurring together. This was probably the most memorable flood in this area in recent history. It resulted in the evacuation of homes, inundation of several businesses and streets, the loss of power and contamination of the water supply in the Town of Sackville.

3.4.3 Memramcook River Basin

Flooding along the Memramcook River, for the most part, is limited to pasture, scrubland and marginal agricultural lands. Reported flooding has not been extensive, probably because the river is well dyked. One notable exception, however, was the flood of April 1962, at which time the highway bridge was destroyed at College Bridge, and railway traffic was halted due to the inundation. On several other occasions, rail and highway traffic has been curtailed due to flooding from the Memramcook River and its tributaries, one of which was in January 1978, when the Rocklyn Bridge at Upper Dorchester was destroyed.

3.4.4 Other River Basins in Southeastern New Brunswick

Flooding has occurred, on occasion, on several other rivers in this portion of the Province. Most of the rivers draining to the Gulf of St. Lawrence have experienced high water.The Richibucto, Aldouane, Coal Branch, Shediac, Buctouche, Scoudouc, Cocagne and Kouchibouguac Rivers are but some of the rivers subject to flooding. The main damages appear to be related to highways, roads and structures. One of the more notable events was that of January 1909, which affected several of these rivers at the same time.

3.5 Southwestern River Basins

The principal rivers in this area of the Province are the Lepreau, Magaguadavic, Digdequash and St. Croix. The southwestern basins, like the Saint John River, are frequently invaded by extra-tropical storms or tropical hurricanes. Intense precipitation can occur at almost any time of the year.

Because of the lighter winter snowpack, snowmelt is not as important a factor in producing the annual peak discharge in the south-

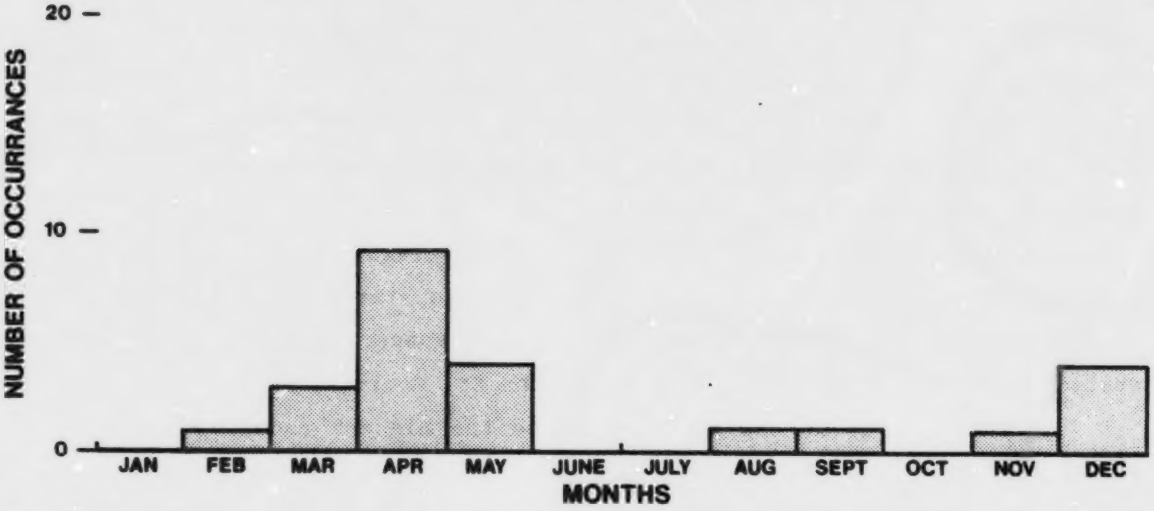


FIGURE 12

DISTRIBUTION OF REPORTED FLOODING EVENTS IN THE

ST. CROIX RIVER BASIN BY MONTH

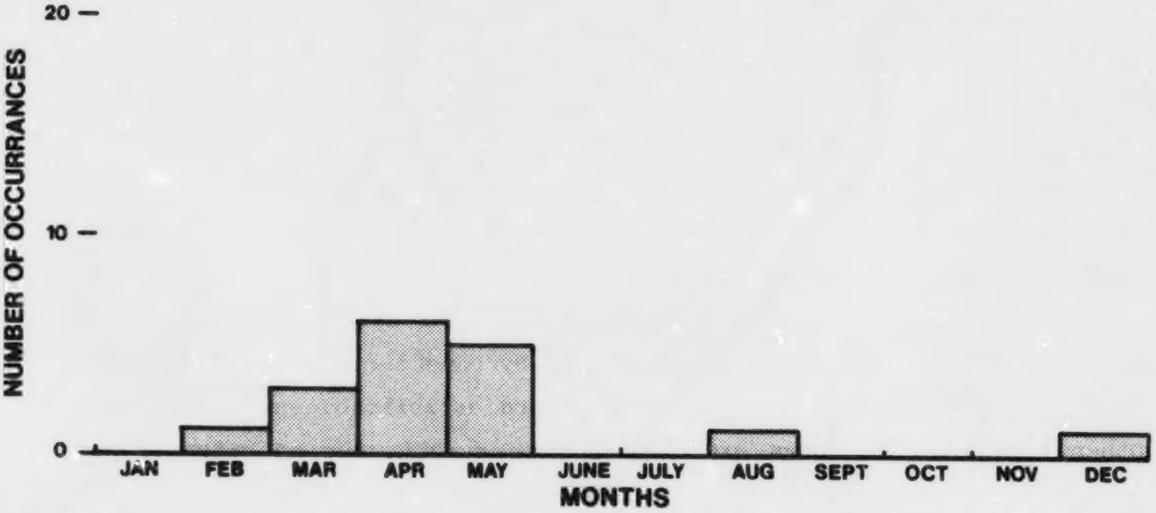


FIGURE 13

DISTRIBUTION OF REPORTED FLOODING EVENTS IN THE

MAGAGUADAVIC RIVER BASIN BY MONTH

western basins as it is in the Saint John River Basin. The annual peak often occurs during the snowmelt period, usually accompanied by rainfall, but it can occur at any time of the year as the result of rainfall. Figures 12 and 13 show the distribution of reported flood occurrence by month for the St. Croix and Magaguadavic Rivers, respectively. Most of the river basins in this region are heavily forested and sparsely populated except for the southern extremities of the major river valleys where some industrial, agricultural and residential flooding occurs. Some coastal flooding has also been noted.

Significant floods occurred in 1887, 1923, 1936, 1961, 1970, 1973 and 1979. At that time, the 1887 event was stated to be the highest in 30 years on the Magaguadavic, while the newspaper accounts of the day stated it was the highest in 60 years on the St. Croix River.

The 1923 event was reported to be the highest recorded flood in about a 90 year period. On both the St. Croix and Lepreau Rivers, the discharges recorded during this event are the extremes for the period of record.

The 1936 flood was reported to be the worst on the Magaguadavic since 1923. However, on the St. Croix River at Milltown, the recorded water levels were about two metres below that recorded in 1923.

The peaks of the 1923 flood in the southwestern basins were higher than those in 1961, despite the fact that the total precipitation during the 1923 storm was no heavier. An obvious explanation may be that the storm occurred at or near the height of the snowmelt runoff in 1923, and that a much larger proportion of the flow at the peak was attributable to snowmelt than during the flood of late May 1961. The fact that the storm in 1923 occurred a month earlier than the 1961 events somewhat supports this conclusion.

The 1970 flood of the Magaguadavic River established the extreme discharge for the period of record at the hydrometric station at Elmcroft. This discharge exceeded the previous record established on May 28, 1961. Other basins in the area experienced high runoff, but no extremes were set.

The 1973 flood appears to have been more significant on the St. Croix compared to other basins in this area of the Province. The event did not exceed the record flood of 1923, however. The total economic cost of the April-May 1973 event in this region was in the order of

Photograph 12

Covered Bridge Destroyed at Brockway, Magaguadavic River
February 4, 1970

Photo Credit: N.B. Provincial Archives

$56,865, of which some $52,386 were paid in compensation by the Federal and Provincial governments.

The 1979 event was a median flood in relation to discharge. However, it was of some significance in the Magaguadavic River Basin as structural damage throughout the basin was relatively high due to the presence of ice.

3.5.1 St. Croix River Basin

The St. Croix River does not flood on an annual basis. This is partially attributable to the river channel being relatively broad and deep enough so that it can accommodate high runoff. The Basin also has a significant amount of man-made and natural storage which also tends to reduce flood peaks.

Floods have been recorded as early as 1887 and, over time, have been reported to have damaged and/or destroyed bridges, washed out dams, swept away lumber and pulpwood, forced the closure of mills and businesses, and inundated a few residences, in particular basements.

The main areas of flood damage in this river basin are in the communities of St. Stephen and Milltown, New Brunswick.

3.5.2 Magaguadavic River Basin

In the Magaguadavic River Basin, flooding occurs almost annually. The most devastating floods tend to involve ice and result in significant structural damage. There is only moderate residential development in the floodplain area, and damages are low. In the area of Lake Utopia, a fairly significant amount of damage has been reported to cottages.

The most frequent problem in the Basin is the inundation of railways, highways and roads. This inundation has isolated communities such as Bonny River and/or Second Falls. Economic losses include the indirect cost of re-routing rail and highway traffic to the United States.

3.5.3 Other River Basins in Southwestern New Brunswick

Other rivers in this region have experienced flooding. The flooding has not been very significant, but warrants a mention for completeness.

The Digdequash River and its tributaries do not exhibit any significant flooding problems. On occasion, roads and bridges are damaged/destroyed and communities like Rolling Dam and Elmsville are isolated for periods of time such as in 1923.

The Lepreau River has also experienced minor flood problems in the past. This has been usually confined to the transportation sector and some marshland near its mouth.

4.0 CHRONOLOGY OF FLOODING EVENTS IN NEW BRUNSWICK

Flood of 1696

A late and very high freshet caused late planting and crop failures at Jemseg. Abandonment was considered.

Flood of 1701

The French settlement at Jemseg was abandoned and moved to Port Royal, Nova Scotia. Flood caused losses to crops and cattle.

Flood of November 3 - 4, 1759

At Saint John, a "Saxby" type combination of storm and tide caused damage. "The storm broke down the dykes on the Bay of Fundy everywhere, and the marshlands, now deserted, were overflown and deteriorated. At Fort Frederick on the Saint John River, a considerable part of the Fort was washed away. At Fort Cumberland on the Tantramar Marshes, 700 cords of firewood were swept off by the tide in a body from the woodyard, although situated at least ten feet higher than the tops of the dykes."

The marshlands were stated to have been "incapable of bearing grain for the following three years".

Flood of 1768

A store at Fredericton was swept away by ice.

Flood of 1785

An unusually high freshet flooded most of the land at Maugerville.

Flood of April 25, 1789

At Prince William, Kingsclear, Queensbury and French Village, ice damage occurred to properties of 20 families. Houses, stock, barns and hay were lost. At Maugerville, mountains of ice were piled 40 feet high. Numerous elms and maples were destroyed by the force of the ice.

Flood of October, 1798

At Fredericton and Maddeskesway (Keswick) and along the Nashwaak and Oromocto Rivers, many families lost stock and provisions. Grass in pastures was covered with sediment. Not a mill dam was left intact for 30 miles. The flood lasted three days.

Flood of 1799

Planting was late at Maugerville due to floods.

Flood of 1817

A flood of 1817 is reported in newspaper reports of 1854 to have been higher than the flood in that year at Indiantown.

Flood of April 11, 1831

There is some confusion in the newspaper reports regarding the year. It may have been 1832. A short period of flooding which lasted about two hours was caused by an ice jam just downstream of Fredericton. The water level in Fredericton rose above the level reached in 1887. Both the upper and lower parts of Fredericton were under water. Water lay two to four feet deep on Queen Street. Flooding extended as far as Wilmot's Alley and flowed upwards as far as Regent Street. The back up of water flooded the Keswick Islands and floated houses away.

Flood of March 20 - April 5, 1846

Cause: Melting of a heavy snow accumulation plus heavy rain for a week beginning March 13. There may have been some ice jams. The event has been referred to as the "Great Freshet" of 1846.

Description: A bridge was destroyed on the Aroostook River. At Presque Isle, many bridges were destroyed. On the tributaries between Woodstock and Fredericton, all bridges were taken out except those at Eel River and Sullivan's Creek. Houses were swept away, and a total of 100 buildings were destroyed on Keswick Island. Wharves and lower stories of homes situated along the river at Indiantown were under water.

Magnitude: Ice began running at Grand Falls on March 25. At Presque Isle, the water level rose 20 feet in a short time. Keswick Island was 12 feet under water.

Flood of October 31 - November 4, 1851

A rapid rise of water occurred at Grand Falls on October 31. Cattle and hay were lost at Keswick. Lumber was lost and residences were damaged at Fredericton but losses of goods stacked on wharves was avoided because of a telegraph message sent from Grand Falls.

Flood of Mid-May, 1854

No reports were available from 1854 describing this flood or the damages caused. However, newspaper reports on the 1887 flood indicate that damages during 1854 were significant. Levels were probably the highest between 1831 and 1887 at Fredericton and the highest between 1817 and 1887 at Indiantown. Levels were about one foot lower than those during 1887 at Indiantown and about 18 inches lower than the 1887 levels at Sheffield.

Flood of November 12 - 14, 1854

Cause: A serious drought followed by "a steady downpour for days" resulted in flooding along the Kennebecasis River and some debris jams.

Description: "Rivers, which were merely hollows of dry gravel, were filled to overflowing, and then the trouble started. Farms were flooded, and it was necessary to take the residents of the old house on the Dobson Farm from a window."

The water rose very rapidly, and from Sussex to Hammond River, cattle were drowned in their stalls. There were also casualties in all other branches of livestock.

Another account reported that houses were flooded and some floated away. Five dams on Millstream were also reported to be washed out. Bridges were said to have been damaged, and roads were reported to be impassable.

Flood of April, 1857

Cause: Ice jams, a severe winter created a large quantity of ice.

Description: Piling up of drifting ice caused flood damage in and around Fredericton.

Damage: A few establishments close to the river bank were destroyed.

Flood of October 4 - 5, 1869

Cause: "Saxby Gale". The tides in the Bay of Fundy had risen to a height of four feet higher than any other known time and were coupled with high winds and heavy rains.

Description: At Saint John, the bottom floor of the Beacon Light, at the mouth of the harbour, was inundated for several hours causing much damage and isolating the light keeper. The battery, stockade and earthworks at the mouth of the harbour were also flooded. Several ships were torn from their moorings and at least one sank. Wharves and buildings were inundated and the resultant damage was said "to be great".

Along the Petitcodiac River and its tributaries the water rose to a height causing extensive property damage. Bridges along the Eastern Extension Railway suffered, including some washouts of rails and sleepers along the marsh. Communications were also interrupted.

At Moncton, a house at the foot of Church Street was reported as having five feet of water over the main floor.

On the Halls Creek Marsh, hay was lost and some cattle were reported to have drowned.

At Hillsboro, the Albert Manufacturing Company was reported to have four feet of water in the shop. Both bridges on Lake Road were washed out. Stores, dwellings and barns were flooded or swept away. The coal wharf, including 400 tons of coal, was washed away and some horses drowned.

The Tantramar Marsh was invaded by the rush of water, destroying barns, fences and inundating houses. At least one home at the landing below Sackville was inundated and the family rescued by boat. The station house floor was reported to be flooded to a depth of six inches. At Middle Sackville, the Morice Lake Dam was overtopped.

Magnitude: At Hillsboro, the tide was reported as having risen eight feet in ten minutes.

Damages: The estimates of damage to the Eastern Extension Railway was reported as being in the vicinity of $20,000. The losses to the Albert Manufacturing Company plant at Hillsboro was reported as being

$20,000. About 121 vessels were driven ashore along the Bay of Fundy and rivers of southern New Brunswick.

At Upper Coverdale, four children were drowned in an attempt by the family to evacuate their small home by raft. A woman was also reported to have drowned on Lake Road at Hillsboro.

On the Tantramar Marshes, at least three lives were lost due to drowning during the flooding. Damages to crops, dykes, barns, fences, wharves and loss of livestock were estimated to be in the order of $81,000.

Flood of September, 1884

Cause: High tides.

Description: The high tides inundated several streets on the Newcastle waterfront. "The anvil, in William Gifford's Blacksmith Shop at the intersection of Castle, Henry and Mitchell Streets, was reported to be covered by the flood waters."

Magnitude: Four feet of water were reported to be over a portion of Mitchell Street.

Damages: No information was given.

Flood of July, 1885

The Monetary Times, Toronto, carried a story of summer freshets on the Upper Saint John River on page 64 of its July 17, 1885 issue.

"Summer freshets on the Upper Saint John are causing much damage. The river rose 16 feet at Van Buren. The new work on the Grand Falls Bridge is gone. The Halifax Chronicle tells us that bridges, houses and mills have been carried away and the crops on hillside farms were washed out. The St. Basile flats are flooded. Booms broken, lumber lost and serious damage done in all directions."

Flood of April 25 - May 14, 1887

Cause: Ice jams, heavy snow accumulation, heavy rain from April 29 to April 30 in upper and middle portions of the Saint John River Basin and high spring tide in the Bay of Fundy.

Description: On April 26, the ice began running above Andover. A serious jam formed six miles upstream of Woodstock. The jam broke the same day and caused water to rise five feet that afternoon but no serious damage occurred. On April 26, the ice moved about 100 yards at Fredericton and then stopped.

By May 2, a large jam had formed at Douglas, five miles upstream of Fredericton. Water was backed up for 25 miles. The islands in the Douglas area were completely submerged. Ice was reported to be covering an area of 20 square miles in the Keswick Flats.

On May 2, the ice ran out at Grand Falls. The river had never been known to be so high when the ice left.

At Woodstock, the river peaked around May 6 or May 7. It then subsided about two feet between May 7 and May 8, and then rose a foot by the tenth before finally receding. At Fredericton, the river rose rapidly until about May 5, then remained steady for 48 hours and gradually crept up another foot to peak on May 12. At Indiantown, the level showed a steady rise and peaked between May 12 and May 14. The relative levels near the peak of the flood at Fredericton and Indiantown are shown on Figure 14. This figure has been constructed from newspaper reports on rates of water level change and areas flooded.

Extensive areas were flooded throughout the Saint John River Basin. Upstream of Woodstock, the main railway line was washed out and railway communications with the west were suspended from May 2 to May 13. Lowlands in the Woodstock area were flooded.

At the peak in Fredericton, water lay four to five feet deep on Brunswick Street between Regent and York. George Street was flooded between Regent and Saint John and the lower portion of King Street was under water. The Fredericton gas house was flooded, and as a result, the City was without lights from May 10 to May 16.

The hardest hit portion of the Saint John River Basin was the Maugerville-Sheffield area. Water was halfway up peoples homes, and up to the first floor of the Sheffield Academy, which was situated on the highest piece of ground in the area. No division was visible between the waters of Grand Lake and the Saint John River.

A vast expanse of water also extended from Fredericton Junction to the Saint John River. Railway tracks were covered near Blissville and at Nerepis.

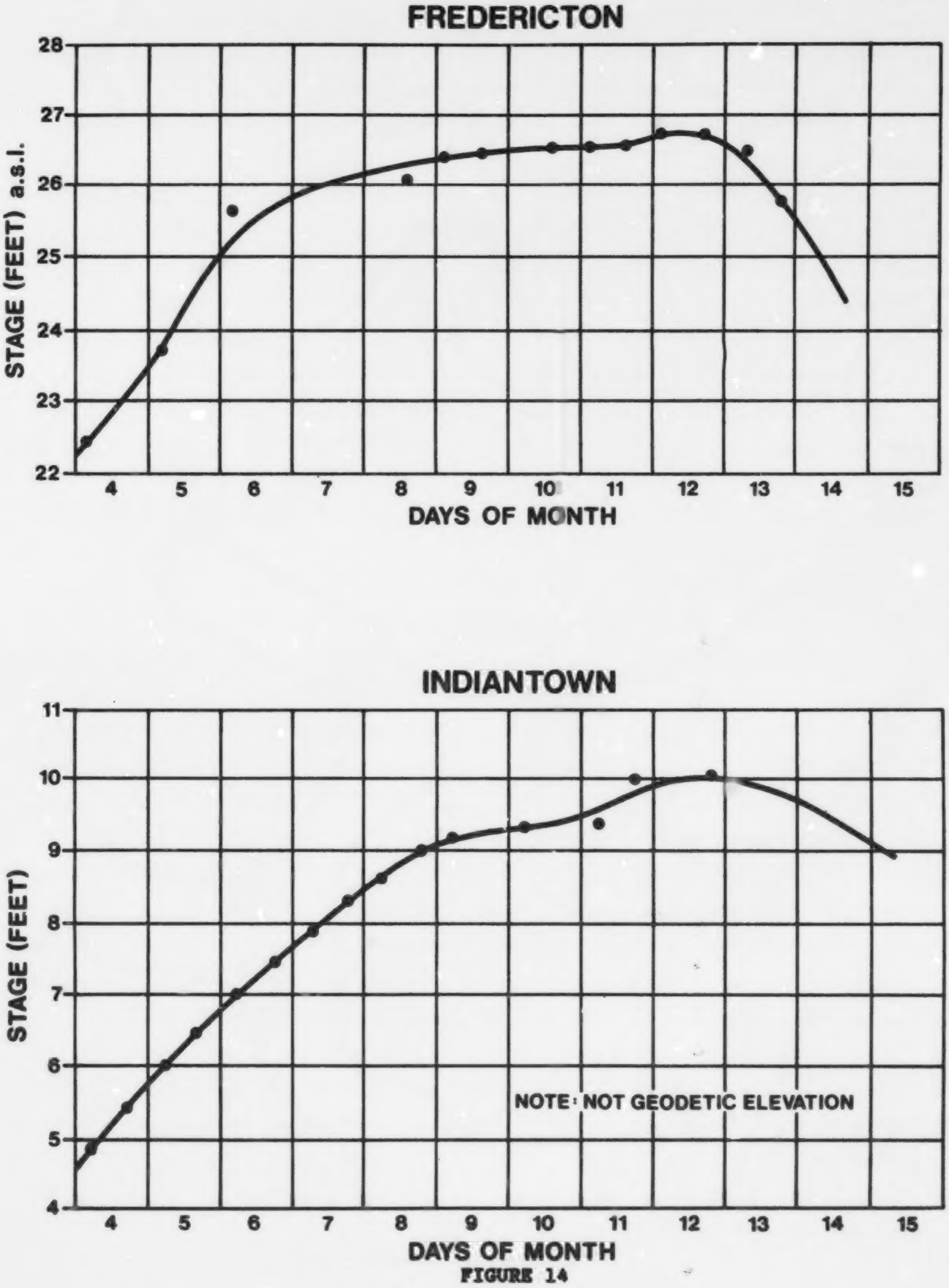


FIGURE 14

FLOOD STAGES - MAY 1887

(Reference: The Flooding Problem in the Saint John River Basin, Report No. 3, Saint John River Basin Board.)

On April 26, ice began to move and jammed some six miles below Boiestown on the Southwest Miramichi. A half mile long washout on the Northern and Western Railway was attributed to this ice jam.

On May 2, the ice began to move again and jammed opposite Sargent's Mill.

On May 3, floating ice was observed all along the river as far as Curr's Mill. Toward evening, the ice along the shores began to move, and the river was cleared rapidly. The ice also began to move at Newcastle.

The floodwaters of the Magaguadavic River completely inundated the Grand Southern Railway at Bonny River Station and near St. George.

At St. George, a portion of the fishway had been carried out and western mail had not been received for a fortnight.

The floodwaters of the St. Croix River swept away King's Mill at Baring, Maine. While at Milltown, Maine, two bridges leading into the mills were destroyed.

The freshet was also reported to have been interfering with the operation of the cotton mill at Milltown, New Brunswick.

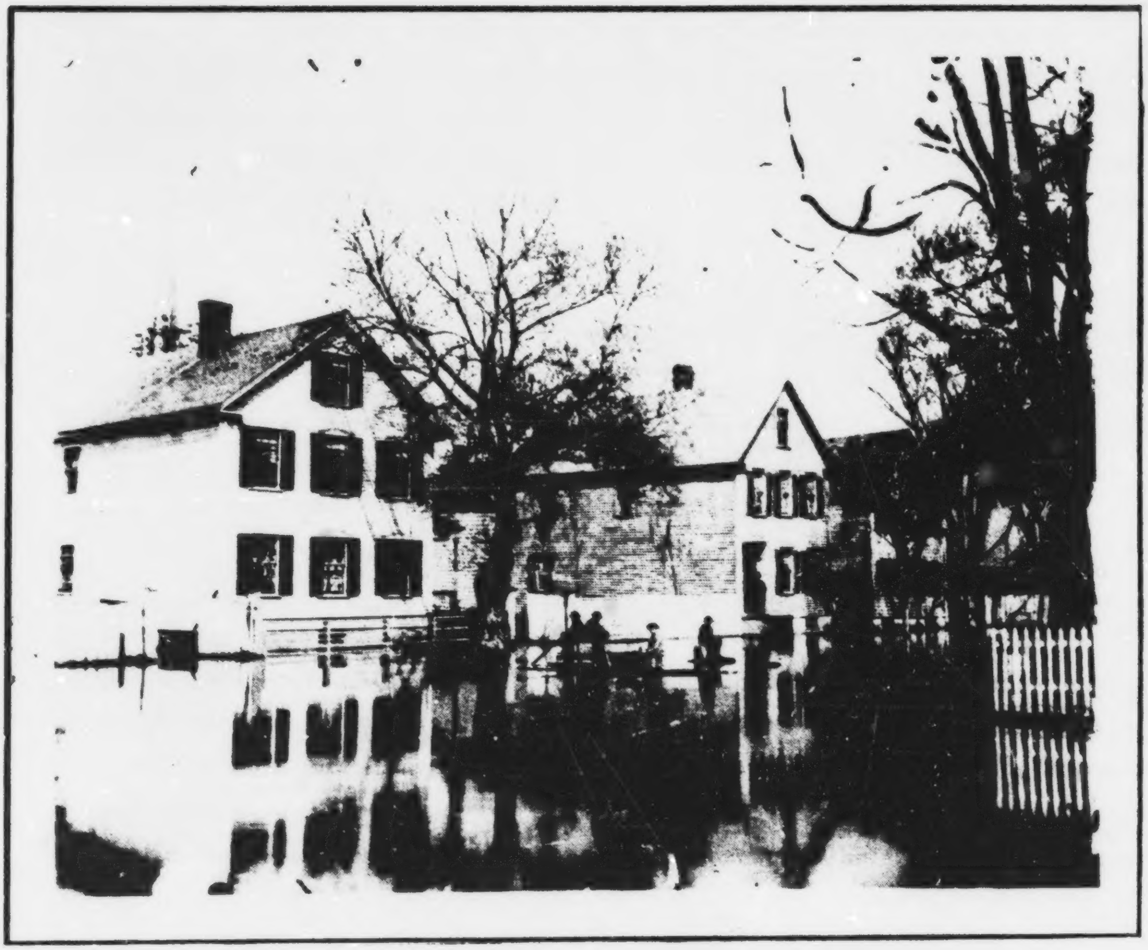
Magnitude: At Fredericton, the peak level, according to a recent survey, was 26.82 feet elevation. This figure, derived from a mark on a stone wall, is questionable when compared to newspaper references which implied that the maximum stage exceeded the 1854 flood (probably by only a few inches) but fell short of the level of 1832. The level was reported to be 13 inches above that reached in 1923. As indicated by the levels reported for the 1923 flood, there is some discrepancy in the reporting of maximum stages.

Newspaper reports indicated that the peak level at Sheffield was 14 inches higher than the 1854 flood, while at Indiantown it exceeded the 1854 flood by about a foot and may have exceeded the 1817 level.

The freshet was reported to be higher on the Southwest Miramichi than it had been for years. The water was said to be eight feet deep on Cliffs Flats. Newspaper reports indicated that it was comparable to the freshet of 1854.

The freshet on Magaguadavic River was reported as not being so high for upwards of 30 years.

Photograph 13



Brunswick Street, Fredericton from end of Allen Street - 1887

Photo Credit: N.B. Provincial Archives

At Milltown, New Brunswick, the waters of the St. Croix River were reported as not being so high in 60 years.

Damages: A newspaper report estimated the total direct and indirect damage at $500,000. Highway and bridge damage was estimated to be $100,000.

Mills of various types were washed out or severely damaged at Edmundston, St. Leonard and Green River on the Saint John River and on the Eel River, Monquart Stream and the Presquile River. The closure of mills in Indiantown put 600 labourers out of work. A mill dam at Grand Falls was washed out. A large loss of lumber occurred throughout the Saint John River Basin.

Nearly all bridges along the Saint John River were either damaged or carried away. Among those carried away were bridges at Grand Falls and Mactaquac (Jewett's Mills). The 75 foot Nerepis Bridge was observed floating past Indiantown on May 13. Railway washouts occurred on the Maine Central and the New Brunswick Railroad lines in the upper part of the Saint John River Basin. A washout also occurred on the New Brunswick Railway near Sheffield.

At Woodstock, buildings on low lying land were carried away by flood waters. Barns on the Keswick Islands were destroyed and several sheep were drowned. Fredericton suffered considerable damage as a result of basement flooding. Both City Hall and Government House were flooded. Damage occurred to waterfront businesses and some houses at Oromocto and Gagetown. Storage sheds were washed away and business establishments were flooded at Indiantown. The river flowed through several buildings at Millidgeville.

In the Maugerville-Sheffield area, severe flooding of houses occurred. Church contents were damaged. Barns were floated off their foundations and fences were carried away. The loss of cattle was described as "something terrible". About two-thirds of the residents of the area abandoned their homes for higher land.

The newspaper reports for the Miramichi area stated that no damage of consequence was caused by either the ice or high water.

Flood of March 22 - 23, 1888

The following excerpt was published in The Kings County Record, March 23, 1888: "The heavy rain of Wednesday night brought the usual spring freshet which covered different roads adjacent to the village with water making them almost impassable."

The Kings County Record is published weekly on Thursday. The article limited its description of flooding to the Sussex area.

Flood of March 15, 1891

The following excerpt was published in the March 20, 1891 edition of the The Kings County Record: "Water in front of us, water to the right of us, water all around us, was the state of the Record Office on Saturday --but the worst of all -- the water was unfit to drink."

The article was restricted to the above description only.

Flood of February 11, 1893

The following excerpt was carried in the February 17, 1893 edition of The Kings County Record: "The rains on Friday caused the water in the small streams to rise suddenly and the roads and fields were in many places flooded. The cellars of many of the stores and dwellings were filled with water and in a few instances some damage was done to the contents." The article limited its description of the flooding to the Sussex area.

Flood of April, 1893

"The water in the Trout Brook undermined one of the abutments of the bridge near Walter McMonaghan's".

This is an excerpt from The Kings County Record, dated April 28, 1893.

Flood of April 23 - May 5, 1896

Cause: Mild weather, warm spring rains and ice jams.

Description: A larger run of ice than normal caused several ice jams which backed up water for short periods of time.

On April 23, an ice jam on the Green River broke and the surge of water submerged the C.P.R. tracks to a depth of five feet.

The C.P.R. Bridge at St. Leonard upstream of Grand Falls was reported to have collapsed.

On April 23, an ice jam occurred at the head of Hallett's Island, near Douglas.

Several washouts were reported to highways in the Nashwaak Valley. The Northern and Western Railway trains were delayed by a washout at Zionville Station.

The traffic was almost entirely suspended in the Maugerville-Sheffield area. Highways and interval lands were reported as being under water and ice for miles. The mails to the area had been cancelled.

On April 22, large ice flows were reported at Indiantown and the water was over many of the wharves. A number of warehouses were inundated including the Tapley coal shed.

On April 29, the water was reported as having been up on the railway tracks and roadway at the foot of Main Street in Indiantown.

About May 3, the freshet began on the Restigouche River and its tributaries. Flooding was occurring in the Village of Matapedia, Quebec. Along the Upsalquitch River near Robinsonville, a bridge was swept away.

On May 4, an ice jam at Dawsons rafting ground (Dawsonville, Restigouche County) was backing water up into the Anglican Church. Several families on the east bank of the Upsalquitch River above Robinsonville were compelled to move from their homes. At Morris Settlement, the Mowat's mill and cookhouse were completely turned around by the freshet.

On May 5, ice swept away the bridge at Matapedia and blocked the tracks. Residents of Matapedia were forced to evacuate their houses by boat.

Along the Northwest Branch Miramichi, the ice carried out a large number of logs but these were recovered by placing of booms at the highway bridge near Sinclair.

On the Southwest Branch Miramichi, the covered bridge at Doaktown was driven off its piers by ice, while the Mill Creek bridge below Stewart's Mill was damaged.

Magnitude: Newspapers reported it to be a greater than normal ice run.

Damage: A large quantity of logs were lost in the Upper Saint John River Valley, Restigouche River and Miramichi River Basins. Several bridges were lost and boom piers were damaged throughout the northern portion of the Province.

Flood of November 3 - 4, 1897

Cause: Heavy rainfall, high tides and strong northeast winds.

Description: In Newcastle, several downtown streets were inundated. The intersection of Castle and McCallum Streets was flooded to a depth of about 18 inches. Hickson's Mill and Mrs. Cooper's Shop were said to have had one foot of water over the floor. The water was reported to be level with the wharves on the Newcastle waterfront.

Magnitude: The heavy rains were said to have lasted for a two day period and the tides were reported to be the highest in 19 years.

Damages: No estimates of damage were presented.

Flood of May 18 - 22, 1900

Cause: Continuous rains which commenced on May 17 and ceased on May 22.

Description: On Friday, May 18, the waters of the St. Croix River began to rise and did so until Tuesday, May 22.

The approach to the bridge at Milltown was submerged. The "Bog District" was inundated and several houses flooded. The C.P.R. Branch line was inundated with damage to the roadbed being reported. Some damage was reported to the mill and dam. A boom of logs was broken.

The Union Bridge was reported as being damaged and this may or may not be attributable to the drifting logs. The planing mill and machine shops were damaged.

Magnitude: News reports stated that the water was higher than ever known before.

Damages: No assessment of damages were recorded.

Flood of October 8 - 12, 1900

Cause: Unusually long and severe rainstorm.

__Description:__ In Fredericton, the area from York Street to the baseball grounds on the upper side and as far as Smythe Street was under water to depths of one to three feet.

Residents on Aberdeen Street were reported as having to use catamarans to go from house to house. The Shoe Factory was forced to suspend their operation for a time.

The bridge across Bailey's Creek (Phyllis Creek) near the Hermitage was destroyed.

Many bridges were swept away and serious washouts occurred on various railway lines. Numerous washouts were reported on the Gibson Branch of the C.P.R. and the Canada Eastern Railway. The C.P.R. line between Fredericton Junction and McAdam was damaged. A serious washout was reported on the Fredericton Branch, C.N.R., at Glasiers but the damage at the Saint John end of the line was said to be even greater as some twenty-five washouts occurred. A bridge at Hoyt was damaged when an abutment was swept away.

In the St. Croix River Basin, several washouts and landslides were reported to have occurred in various areas.

__Magnitude:__ Total rainfall for the period at Saint John was in the order of 8.37 inches while the total rainfall at Fredericton was approximately 8.34 inches.

__Damages:__ Extensive damage to bridges and railway property was reported.

Flood of April 7 - 12, 1901

__Cause:__ Heavy rains and breakup of the heavy ice cover resulted in ice jams occurring at Grand Falls, Springhill, Fredericton, just below Oromocto and at Currie on the Tobique River.

__Description__: The ice began running on April 7. This was reported to be the earliest since 1846.

On the Aroostook Branch, C.P.R., considerable ice was piled up on the tracks; while on the Tobique Valley Branch, the tracks were hardly damaged by ice.

A mill on the Meduxnekeag River was swept away. The Meduxnekeag River also took out a mill dam and swept away one span of the railway bridge at Woodstock.

Bridges were washed out at Nackawic and Keswick, while three bridges on the main highway from Woodstock to Fredericton were also carried away. These were the Longs Creek Bridge, the Kelly Bridge and the Garden Creek Bridge.

Two ice jams occurred above Fredericton; one above and one below Springhill with open water in between. The ice swept over Sugar Island, demolishing 12 barns and tops of several boom piers at Douglas. All the islands and interval land in this reach of the Saint John River were under water. The Upper Mill was destroyed.

In the Fredericton area, ice was piled up to a height of 40 to 50 feet on the old deepwater terminus of the C.P.R. at Gibson (Devon). Many warehouses and sheds along the waterfront in Fredericton were damaged by ice. The railway bridge pier on which the draw span rests was damaged. Many cellars in the City were flooded, as well as a portion of Brunswick Street between York and Regent Streets. Sunbury Street from Gas Alley to the residence of Dr. Bailey and all adjacent fields and yards were under water.

The Canada Eastern Railway was under water at several points along the Nashwaak River.

All the lowlands at Maugerville, Oromocto and Wassis were flooded and many cattle were reported drowned. In some cases, the lower floors of houses were flooded. Seven barns on Oromocto Island were destroyed. The wharf at Oromocto sustained damage and Stocker's Hotel was flooded forcing lodgers to move to the second floor.

At Burton, a sawmill was destroyed and a lighthouse at Gagetown was carried away. All telephone service to the area below Lincoln was disrupted.

At Indiantown, the water had reached the lower portion of Bridge Street.

The residents of Matapedia were anticipating a repetition of the flood during the spring of 1897.

Ice was running in the Main Southwest Miramichi and jamming at various points. At Doaktown, ice had damaged one of the bridge abutments. Some damage was reported to have occurred in the Chatham area.

Flooding was reported throughout the Magaguadavic River Valley. At Brockway, several cellars were flooded. Trains on the Shore Line were operated on irregular schedules. At St. George, many homes on the interval land were evacuated because of the flooding.

In the St. Croix River Basin, flooding was reported as being fairly severe. All C.P.R. trains in the area were cancelled due to washouts.

At Milltown, the water was over the approach to the Upper Bridge. The Cotton Mill was closed because of the high water. A number of families were compelled to evacuate their homes while others were living on the second storey.

At Union Mills, a boom broke releasing 250,000 feet of logs which went over the dam heading toward the sea. The logs crashed into the Union Bridge between St. Stephen and Calais carrying away the American end of the structure.

Magnitude: The ice jam below Oromocto Island caused levels in the immediate vicinity to rise within 14 inches of the 1887 flood level.

The St. Croix River was reported as being higher than the big freshet of last October and probably higher than any time in the past.

Damages: Extensive damages were reported to have occurred to mills, bridges, highways and agricultural lands. At Woodstock, the damage to the sawmill was estimated to be about $15,000 while the loss of logs was estimated to be in the order of $25,000.

Flood of June 23 - 24, 1901

Cause: Exceptionally heavy rain accompanied by thunder and lightening.

Description: At Saint John, the heavy rains resulted in catchbasins blocked with gravel and debris. Some streets were reported to be "turned into river beds". The Marsh Road and streets at Lower Cove were reported to be torn up by the heavy runoff, and many basements were inundated. Erosion was reported to be quite extensive at the Public Gardens and in the local agricultural areas.

Several minor washouts were reported along the C.P.R. lines in the Saint John area.

Magnitude: At Saint John, in excess of four inches of rain was reported to have fallen between 10:00 p.m. on the 23rd and the morning of the 24th.

At Sussex, a 4.33 inch rainfall was recorded between 10:00 p.m. on June 23 and 9:00 a.m. on June 24. The rain was reported to have continued until 2:00 p.m. on the 24th. The total rainfall for the storm was reported to be 4.87 inches in the 16 hour period.

Damages: No estimates of damage were presented. The newspapers did indicate however, that crop damage was extensive.

Flood of March 17 - 23, 1902

Cause: Unusually early break up due to high temperatures, heavy rains in southern portion of the Province lasting about 40 hours, and ice jams.

Description: This was reported to be one of the earliest spring breakups in history. Opening of the Saint John River for navigation was the earliest on record, exceeding the previous record set on April 2, 1862.

An ice jam was reported upstream of Edmundston causing some flooding. The Madawaska River was reported as overflowing its banks and running through the Main Street of Edmunston to the Saint John River. Washouts occurred on the Temiscouata Railway near Edmundston.

A highway washout occurred at Andover.

A severe ice jam at Hartland lasted two days. The water rose to a height at which it covered the walkway of the bridge. The lower street was completely under water and the basements of stores along Main Street were inundated. The contents, mainly general merchandise, were ruined. The Keith and Plumber Cheese Factory was swept off its foundation. The Shaw and Estys Mill, a mile below Hartland, was also moved from its foundation.

An ice jam occurred at Newburg Junction, north of Woodstock. An ice jam occurred at Hawkshaw and another from Bear Island to Springhill. These ice jams backed up water flooding the Barony and the road to Woodstock Crossing, destroying the Norton Dale Bridge. The bridges across Long's Creek and Kelly's Creek were destroyed. About two feet of water was reported over the deck of the covered bridge at the Mouth of Keswick. A bridge at Upper Keswick was carried away. All of the islands above Fredericton were inundated and about 20 barns were reported as being swept away. At McNally's Ferry, a family was forced to vacate their home due to the flood waters.

At Fredericton, several buildings along the river banks were flooded.

In the Nashwaak Valley, an ice jam occurred at McConnall's and the railway bridge upstream of Marysville was damaged slightly by the ice run. An ice and log jam formed at Stanley and lasted for several days. When this jam broke, large areas of Stanley and downstream were flooded. One life was lost at Nashwaak Bridge when this jam gave way. A 175 foot steel bridge, several smaller bridges and a mill dam were swept away. Telephone lines were out and the Canadian Eastern Railway was forced to cancel trains due to the inundation of the rail lines.

In the Lincoln, Maugerville and Sheffield areas, highways and the interval lands were inundated. It was feared losses would be heavy since no attempts were made to move anything in the homes and barns. The Burpee Mill Stream bridge behind Sheffield was carried away.

Highways, railroads and bridges were also damaged in the Welsford, Hoyt and Blissville areas. The piles of a railway bridge, 10 miles east of Bailey were broken by ice. C.P.R. lines were washed out at Enniskillen and Clarendon.

Several washouts occurred along the Central Railway near Chipman. The Salmon River, near Chipman, was also attributed with the destruction and damage to several highway bridges. Some logs and a small shed at the C.M. Bostwick & Co. mill were lost, and enough damage occurred to seriously interfere with the operations.

About six-tenths of the Central Railway bridge crossing Washademoak Lake was destroyed. The highway bridge across the Canaan River at Coles Island was carried away as well as Forbes Bridge, about 14 miles upstream at the Forks.

Along the Kennebecasis River and its tributaries reports of damage were recorded. At Dunsinane, three miles from Penobsquis, a small washout was reported along the Inter-Colonial Railway, while at Plumweseep, a washout resulted in a train derailment. A fairly large highway bridge was swept away at Penobsquis. In the vicinity of Sussex, washouts of highways and bridges occurred, and many cellars were inundated. The Government Grounds, at Sussex, suffered heavy erosion. At Roachville, on Smith Creek, many logs and piles of wood were swept away. A bridge over Salmon Creek, near Roachville, was damaged. At

Lower Millstream, considerable damage occurred when the mill dam burst. The flood of water carried out a new bridge, inundated the mills and the roads, isolating many families. The highways and bridges in the vicinity of Norton were damaged or swept away. Washouts also were reported in the area near Hampton.

At Indiantown, practically all of Bridge Street below Glasier's warehouse was under water as well as the Public Wharf. Timber was reported as being adrift in South Bay.

In the Miramichi River Basin, the freshet forced cancellation of all Canada Eastern trains between Chatham and Doaktown as well as between Doaktown and Fredericton. The railway line was under water at McNamee and Boiestown. Ice jams were reported at Barnaby's Island, Washburn Island near Blackville, and against the Canadian Eastern Railway bridge at Doaktown. The ice jam at Barnaby's Island was reported to be 50 feet high and about three miles long. This jam also resulted in flooding of the Millerton wharf to a depth of several feet, and in damage to buildings and steamers.

Several bridges were washed out or damaged, a number of cattle were drowned on the intervals and large quantities of lumber were lost. The bridge at the mouth of the Taxis River was damaged as well as the Barnaby River Bridge. The Porter Cove Bridge and the Campbelltown Bridge were carried away. On the Cains River, ice swept away some logs.

A portion of Doaktown was inundated, and at Millerton, destruction was quite extensive. The Miller's Mill was badly damaged. J.C. Miller's warehouse, located on the wharf, was swept away. Steamers at the wharf were capsized and boom blocks were badly damaged.

In Kent County, several rivers were reported to be in flood. A new bridge at Carlisle Mines, on Coal Branch, tributary of the Richibucto River, was carried away. The MacWilliam Bridge, at Mill (Branch) Creek, was damaged when the centre span was carried away. Along the Buctouche River, the freshet carried away lumber belonging to the Coates Lumber Manufacturing Company. Several bridges were washed out along the Cocagne River. These bridges were at Notre Dame, Poirier's and at Northwest. At Notre Dame, about two million feet of lumber were lost when booms broke.

In the Moncton area, the Salisbury and Harvey Railway was washed out at Turtle Creek. A highway washout was reported between Hillsborough and Albert Mines. At Hillsborough, a large bridge above Osman Lake was reported to have been carried away.

In Saint John County, the Salmon River Mill property near St. Martin's was damaged considerably when the dam broke. A great quantity of lumber was also swept away. Streams in the vicinity of Little River, Loch Lomond and Mispec were reported to be 'bank full'. In some cases, the banks were overtopped and large tracts of land inundated.

The highway bridge, at Clinch's Mill, along the Musquash River was reported to be in danger. The swollen waters of the Lepreau River were reported to have carried away a highway bridge as well as J. A. Gregory's mill dam. About three million feet of logs were swept away.

The Shore Line Railway, along the Magaguadavic River, near St. George and at Linton's Stream, was submerged with washouts occurring in some sections. At Brockway, the Upper Trout Brook Bridge and approaches were submerged. At Second Falls, families were forced to vacate homes near the river. The Young's highway bridge was carried off its piers and downstream against the railway bridge causing some damage. At St. George, a portion of Manor Road was inundated.

Magnitude: Heavy rains, particularly in southern New Brunswick, contributed to the high river stages. Four and one-quarter inches of rain fell on Saint John over a period of 57 hours between March 17 and 20, breaking previous records.

Extensive flooding was reported along rivers in Maine. An ice jam at Hartland, caused water to reach the highest point recorded in 37 years. The Nackawic River was reported to be within three feet of the record freshet, and at Indiantown, the levels were about the same as those in 1901. It does not appear that flows were too great on the Saint John River, but on the Salmon and Kennebecasis Rivers, reports of a severe flood were recorded. No such freshet had occurred on the Salmon River since 1874. At Sussex, reports indicated that the flood was the most severe in 20 years. At Millstream, it was the biggest since 1867, and at Norton conditions were the worst since 1854.

The Coal Branch, tributary of the Richibucto, was reported as being six feet higher than ever known before. Along the Lepreau River, the water level was reported as having reached the five foot mark on riverbank trees. The Magaguadavic River was reported to be 12 inches higher than the flood of October, 1900.

Damages: One life was lost in the Nashwaak Valley when an ice jam at Stanley broke.

Bridges and mills were swept away in all sections of the Province. Estimates of bridge damage was $50,000 with the heaviest losses being in Kent County.

It was reported that a traveller on board the derailed train at Plumwesweep had $1,500 worth of samples ruined by the floodwaters.

Flood of October 29 - 30, 1902

Cause: Fall rains.

Description: In Kings County, heavy rains resulted in freshets on most of the small streams. Considerable damage to the roads in the district was reported.

Magnitude: No information was presented.

Damages: No information was presented.

Flood of August 20 - 21, 1904

Cause: Heavy, intense rainfall.

Description: At Saint John, the heavy rainfall was reported to have caused extensive damage to many city streets.

A washout was reported on the New Brunswick Southern Railway near Duck Cove.

The Mispec Stream was reported to be swollen to freshet levels which resulted in extensive damage. At Mispec, forty feet of the culvert at Blacklock's store were swept away, the Barus Bridge was swept into the Bay of Fundy, and the approaches to Thomas Bridge were damaged.

The roads between Mispec and Saint John were damaged and reports stated that nearly every culvert in the vicinity had been affected.

Magnitude: The rainfall was described as being unprecedented at Saint John, 3.80 inches of rain were recorded between 3:45 p.m. August 20 and 2:00 a.m. on the 21st.

The volume of water in the Mispec Stream was described as having exceeded any previously known freshet. The stream was reported to have reached its peak in a six hour period.

Damages: The only documented damage figure presented was that of $150 to repair the washed out approaches of the Thomas Bridge at Mispec.

Flood of January 4 - 7, 1909

Cause: Mild weather, heavy rains on January 5 and 6 caused ice to run and possibly jam.

Description: The railways suffered from the mild weather which caused several washouts. Several washouts were reported on the Inter-Colonial and Canadian Pacific Railways. These were at Rothesay, Chatham Junction, Fredericton, and Clarendon, Queens County. Another washout was reported at Tay Creek in the Nashwaak River Basin.

In the Miramichi River Basin, the ice broke up on the Southwest Branch, at Indiantown between Blackville and Black Rock on the 6th. The ice was piled 10 to 11 feet high along the shores of the Southwest Branch. The ice swept away the form work for the piers of a new bridge and tore out the cable crossing the river at Indiantown. The Renous River Bridge was also damaged.

At Kouchibouguac, Kent County, both steel spans of the bridge were swept away. The booms and piers of R. O'Leary and Curren Bros. were carried away. A number of families near the river were compelled to evacuate their homes. Atkinson's Store was reported to have lost considerable stock due to water over the first floor. Cattle had to be evacuated from some barns. The highway bridge over the main river at Mortimore was carried away. The breast work of the dam at Cameron's Mill was destroyed.

At Coates Mill, the dam broke sweeping away 500,000 feet of logs of which most were saved. The Buctouche River also caused some damage to the highway bridge at Coatesville.

At Notre Dame, C. E. Lockhart's Mill dam suffered and logs were lost. The Cocagne River also caused similar damage here during the freshet of March, 1902.

In Kings County, 14 bridges were damaged or destroyed between Sussex and Saint John. Among these were the Stony Brook Bridge, Ryan Bridge and Musquash Bridge, Sussex; Mayes Bridge, Bell Brook Bridge and Malone Bridge, Studholm; Albert Hill Bridge and Danfield Bridge, Cardwell; Pickwacket Bridge, Norton; and Carr's Bridge, Waterford.

In Sussex, Main and Maple Streets were reported under water and many residents were isolated from the rest of the town. The road between Sussex and Sussex Corner was reported to be impassable, and O'Connell Park was inundated.

Three other bridges damaged or destroyed were the Canaan Bridge, Queens County; York Mills Bridge, York County; and the Chipman Bridge, Queens County.

At Norton, flooding resulted in the evacuation of several barns, and the only method of conveyance was by boat.

At Waterford, Adair Mill, near the church, was reported to be carried downstream along with its contents.

Magnitude: The freshet was reported to be very heavy in Kent County. Nearly 3.5 inches of rain was reported in less than a 24 hour period.

Damages: A nine year old child fell from a small bridge and drowned in a flood swollen stream near his home at Chester, Albert County.

An unofficial estimate of damage to highway bridges and roads was placed at $100,000.

Flood of April 14 - 17, 1909

Cause: Spring freshet augmented by heavy rains on April 15.

Description: Heavy freshet on the headwaters of the Richibucto River carried away the Bass River bridge. Two smaller bridges above Bass River were also swept away.

Magnitude: The freshet on the main river and its tributaries was reported to be heavier than the big freshet of January, 1909.

Flood of April 8 - 10, 1910

Cause: High temperatures and heavy rains.

Description: On April 9, a 26 foot section of the Shediac Light and Power Company's dam on the Scoudouc River was washed out. The onslaught of water carried away a 200 foot highway bridge, known as MacDougall Bridge. The debris, logs and water broke booms at Smith's Mill, sweeping logs out to sea.

Flood of July 22, 1911

Cause: Heavy rainfall, some debris jams.

Description: At Chatham, the heavy rainfall overtaxed drainage systems resulting in some flooded streets and sidewalks. A brook flowing through the town was reported to be blocked with debris and had overflowed its banks in the vicinity of the Hoffman Store. The yards at the rear of A.J. Loggie and the Yerxa Co. stores were flooded to a depth of one foot. Two warehouses were flooded and considerable flour and other stock were damaged.

Magnitude: A rainfall of 1.10 inches was recorded, and the accounts stated that "this occurred in a comparatively short space of time".

Damages: No estimates of damage were presented.

Flood of August 8 - 12, 1912

Cause: Heavy rain throughout most of New Brunswick.

Description: Bridges, culverts and railroads were washed out in the vicinity of Perth, Hartland, Woodstock and Blissville. C.P.R. freight trains north were cancelled and all passenger trains were running late. Considerable damage resulted to crops in various parts of the Province.

At Six-Mile Island, near Grand Falls, a boom was carried away by the sudden increase in water.

Near Bath, the Monquart Bridge was undermined and left impassable. The C.P.R. bridge across the Shikatehawk Stream was badly damaged.

The dam at Lockhart's Mill, Bristol, had broken. A large quantity of lumber was lost. About 200 rafts belonging to the Peel Lumber Company and B. S. Smith had also gone adrift.

Another C.P.R. washout had occurred between Newburg Junction and Hartland.

At Woodstock, the Meduxnekeag Creek had risen to flood the interval destroying hay crops. The Lake Company's Power Plant was threatened and the Meduxnekeag Bridge was in danger. A large warehouse used by the Frost and Wood Machinery Company, at the south end of the bridge, was being undermined. About 0.5 million feet of logs were jammed in the Meduxnekeag Creek.

At Mouth of Keswick, all the fields were reported under water. Portions of the islands above Fredericton were inundated.

The Glasier Boom, downstream of Fredericton, broke and was carried downstream into the Mitchell Boom. A portion of the Mitchell Boom gave way setting about 2.5 million feet of lumber adrift. Water was reported to be over the road in the Maugerville area.

Along the Nashwaak River, water was reaching spring freshet height. Logs were being carried over the Marysville dam.

Two spans were reported as being torn out on a bridge crossing the Southwest Miramichi. The river channel was partially blocked by debris, preventing the passage of rafts.

In Albert County, marshes were inundated, and many bridges and culverts were washed out.

In Westmorland County, flooding occurred on the Tantramar Marshes, destroying the hay crop. Morice Mill Dam, at Silver Lake near Sackville, broke and heavy damage resulted from the flood that followed. A 70 foot section of the dam at Morice Mill Pond washed and fears were expressed that the foundation of the mill would collapse. A section of Lorne Street was reported to be "a lake of considerable depth". Another dam, further upstream at the Ogden Mill, gave way and damaged the mill. A bridge on Main Street, over Mahoney's Brook, was washed out, rendering the street impassable. The railway lines west of Sackville and towards Prince Edward Island, were inundated at several locations.

Magnitude: The Dominion Meteorological Bureau at the University of New Brunswick reported that during the month of July there were 15 rainy days. A total precipitation of 4.43 inches was recorded during this period as compared with 3.52 inches in July, 1911. During the month of August, there had been eight rainy days to date and a total precipitation of 2.77 inches. The heaviest rainfall occurred on Saturday, August 10, which measured 1.33 inches. Heavy rainfall was also reported at Chatham. The Saint John River at St. Leonard was reported to have risen at least eight feet. At Perth, the Saint John River was reported to have risen four feet on August 11. At Fredericton, the river was reported as having risen between eight and nine feet, peaking on August 13. Conditions were reported as being similar to the mid-summer freshet of 1881.

Damages: A washout was reported on the Inter-Colonial Railway. Several culverts on the highway from Sackville to Moncton were washed out. Cattle were also reported to have been killed in the Sackville area. Damages at the Ogden Mill were reported to be in the order of $200 to $300.

Flood of March 28 - April 5, 1913

Cause: Mild weather and spring rains causing some ice jams.

Description: A highway bridge over North Forks, tributary of the Keswick River, at Stoneridge, was carried away. It was reported that the bridge at Mactaquac had been destroyed. At Fredericton, the pier on the south side of the draw span collapsed taking the deck span with it. This was caused by the heavy run of ice.

In the Miramichi River Basin, an ice jam formed at the Barnaby River highway bridge. The centre span of the structure was swept away. Barnaby River was reported as being well over its banks. The bridge at Blackville sustained sufficient damage and was closed to traffic. Trains were forced to detour by way of the Indiantown Branch to Blackville.

No serious damage occurred in Kent County. The stock in Atkinson's Store at Richibucto had to be removed. The cattle in this area were moved from the barns and taken to higher ground.

In the Sackville area, roads were inundated at many locations, and the stage mails were delayed for several days.

Magnitude: Barnaby River was reported as never being so high in the past.

Damages: Damage to the highway bridge at Fredericton was estimated as being in the order of $30,000.

Flood of April 23, 1915

Cause: Mild temperatures, rain and some ice jams.

Description: Some landings on streams in the Miramichi were torn out with the ice run sending logs adrift. A heavy ice jam occurred at Bryenton. Another ice jam was reported at Porter's Cove downstream of Doaktown. A large quantity of logs were swept out to sea.

Flood of July 8 - 9, 1915

Cause: Heavy rain accompanied by wind.

Description: A freshet on the Miramichi River was reported to have swept 35,000,000 feet of logs away when booms broke. The shore opposite Newcastle was reported to be strewn with logs. Agricultural land at Napan was reported to be covered with silt and mud.

At Black River, two bridges were washed out.

Magnitude: No information was presented.

Damages: The damages in Northumberland County were reported to be in excess of $500,000 of which $200,000 was reported to be lost logs.

Flood of March 12 - 16, 1920

Cause: Torrential rains.

Description: Flooding occurred in various parts of the City of Saint John and outlying districts. Cellars and basements were flooded, streets washed out and traffic was suspended on Westmorland and Marsh Roads. The damage was reported to be heavy.

Flood of April 6 - 10, 1920

Cause: Rain, melting snow and some ice jams.

Description: At Hartland, the rain was reported to have begun during the evening of the 5th, and continued throughout the night. The river was said to have risen rapidly and by 9:30 a.m. on April 6, the ice began to move and jammed a short distance below the town. The rapid rise in water levels resulted in several families being forced from their homes, the evacuation of livestock and damaged stock stored in the basements of some stores.

These flood conditions were reported to have lasted a very short period of time as the jam broke under its own pressure. The ice run pounded the piers of the new bridge for a three hour period, destroying the two western-most spans. As a result of the bridge loss, a stream ferry was put into operation at Simmonds. It was anticipated that temporary spans would be installed and traffic would be resumed on the structure May 15.

Another ice jam was reported to have formed at the Hawkshaw Bridge. The debris from the Hartland Bridge was also reported to be piled up on this jam.

In the Keswick Islands area, below Crock's Point, a large ice jam was reported to have occurred, resulting in the inundation of the C.N. railway line. One washout was also reported in this area. The ice was reported to have carried away the rigging of the wire ferry and several barns and buildings on the islands.

The Fredericton bridge was also considered to be in imminent danger from the ice.

An ice jam in the Nashwaak River at Durham caused the inundation of the Canada Eastern Railway line. This caused a disruption of service between Fredericton and McGivney.

In the St. Croix River Basin, the bridge at St. Stephen (International Bridge) was reported to be affected by floodwaters. At Milltown, the MacAllister Bros. Grist Mill was described as being surrounded by water. The Cotton Mill was forced to close on April 6 and remained closed for about three weeks due to the high water.

At St. George, the Magaguadavic River reached the highest peak in several years. At Second Falls, a portion of the dam was carried away. Roads in the area were covered with up to five feet of water in places.

In the Moncton area, Humphrey's Dam broke flooding areas downstream. Other dams in the area were said to be in danger.

Magnitude: The ice in the Saint John River at Hartland was reported to be in the order of two feet thick. Local residents stated that "a greater depth of snow than had been known for years" was on the ground prior to the thaw. The ice run was said to be the heaviest ever witnessed at Hartland. When ice jammed downstream of the town, water levels were stated to have risen six feet in less that 10 minutes. The ice run which followed was reported to be moving at 15 miles per hour.

Water levels at Crock's Point were reported to be 11 feet above summer level.

Damages: No estimates of damage were presented.

Flood of April, 1921

Heavy flooding occurred along the C.P.R. line at Bailey. Logs were adrift in the Miramichi River, and the ice was running. Ice jammed at Parker's Shore, but was reported to have broken on its own. Problems were also encountered at Douglastown Dairies. The covered bridge at Hartland was reported to have been lifted from its piers by rising water and ice. No reports of serious flooding were documented.

Flood of June 17 - 25, 1922

Cause: Heavy rainfall for nearly six days in northern New Brunswick. Logs released from broken booms and dams increased the damage somewhat.

Description: The flood was responsible for considerable agricultural damage in Madawaska County and Aroostook County, Maine. Damage of a limited nature was reported between Edmundston and Connors. Several barns were carried away and a portion of the front street in Fort Kent, Maine, was inundated. The Fraser's Mill dam at Baker Brook was partially destroyed.

The flood was particularly high on the Tobique and Becaguimec Rivers. On the Tobique, the Nictau Lake dam broke. Several houses were caught in the onslaught of water and carried away. At Plaster Rock, Fraser's Mill was submerged, several railway sidings were under water and the railway station was surrounded by water. At Wapske, the railway tracks were inundated for a distance of one-quarter mile which resulted in a washout. Logs which had broken away from a boom at Plaster Rock were reported to have damaged the Arthurette Bridge. A mill dam at Rowena was destroyed.

Bridges were taken out on the Becaguimec, on the Little Shikatehawk near Bristol, along Coldstream, a tributary of the Becaguimec River, and at Hartland. Highway and railway damage was reported to be extensive between Hartland and Woodstock. Sawmills were destroyed on the Becaguimec River. Strawberry crops and gardens were lost in the Woodstock area. The flood conditions on the Meduxnekeag River forced the mills and power plant to close down their operations.

A small washout occurred at Ross Siding along the Nashwaak. Farms and roads at Maugerville, Sheffield and Lincoln were inundated. One of the worst inundations of roads was near Bailey, Sunbury County. Some cattle were drowned at Gagetown.

Water covered railway lines throughout most of the Province, mainly the lines belonging to the C.P.R.

The Restigouche and Upsalquitch Rivers flooded miles of highway and isolated some communities. At Campbellton, storm sewers were overloaded in some sections of the town. Inconvenience and loss of some stock resulted from flooded basements.

The only occurrence of flooding reported from the Miramichi River Basin was at Juniper. A chief game warden was trapped by flood waters.

Magnitude: It was reported as being the highest flood of any type on the Tobique River for 25 years. The Tobique was said to have risen 16 feet at Plaster Rock.

On the main stem of the Saint John, the level rose about 10 feet from June 18 to June 24 at Fredericton. It peaked at 19 feet above summer level. At Indiantown, levels remained at or near the peak level until June 29. The maximum daily mean discharge at the Pokiok gauging station was 220,000 cfs. Newspaper reports indicated this to be the highest summer flood in memory. It has not since been exceeded during the summer, at Pokiok.

Damages: The damage was confined almost entirely to the northern portion of the Province. Lumber was swept from booms and bridges and houses were carried away by the force of the current. Along the lower reach of the river, crops of hay and other products were destroyed.

Newspapers reported damage totalling $1,000,000 (most of the damage within New Brunswick was in the Saint John River Basin). This included losses to bridges, highways, railways, crops and agricultural lands. The New Brunswick Minister of Public Works estimated losses of $150,000 to $200,000 to the provincial highway system, and, in another account, $75,000 damage to provincial bridges. The Hayden Lumber Company at Woodstock lost logs valued at $4,000.

Flood of August 26 - 28, 1922

Cause: Heavy rainstorm.

Description: Southern counties appeared to be the hardest hit. Serious damage resulted in Kings and Saint John Counties, especially along the Bay of Fundy shore. Very little damage occurred on the North Shore. Secondary roads were the hardest hit. Many crops were destroyed or badly damaged.

In Charlotte County, the damage to roads and bridges was slight.

In Sunbury County, one small bridge was washed out but extensive damage resulted to road surfaces.

In Kings County, a number of small culverts were washed out as well as a bridge span of 20 feet.

In Sussex, the foot bridge crossing from Main Street to the military grounds was carried away. The cinder track and tennis courts at the S.A.A.C. athletic field were badly damaged.

At Lewisville, Westmorland County, a mill dam broke and destroyed a portion of a highway bridge. Lewisville is on the outskirts of Moncton.

Magnitude: The rainstorm was said to be the heaviest August rainfall in almost 20 years. The recorded rainfall at Fredericton was 2.97 inches, while at Saint John, 5.18 inches were recorded. A total of eight inches of rain was reported at Sussex, with 5.16 inches of the total falling in a 10 hour period. The freshet was described as the highest in memory on the Kennebecasis to be caused by rain without snow being on the ground.

Damages: The damage to bridges and roads was estimated to be in the order of $100,000. Total damages to provincial works in the two freshets during 1922 was estimated to be in the order of $450,000. However, it had been reported that only $175,000 had actually been spent on repairs.

Flood of April 9 - 12, 1923

Cause: Snowmelt and ice jams.

Description: Three days of mild weather resulted in floods throughout Kings and Northumberland Counties.

In Sussex, numerous basements were inundated and the road between there and Sussex Corner was submerged, inconveniencing traffic. In the vicinity of the residence of Judge Jonah's, a sidewalk bridge was washed out.

The meadows between Sussex and Apohaqui were inundated. At Apohaqui, the water was said to be very high but the houses escaped with flooded cellars only. The Millstream road was reported to be under water and some logs in that area were carried away.

On April 10, the ice broke up in the vicinity of Sussex and jammed at Norton. The water then came up over the road, inundating houses and shops, and reaching a depth of some two feet in several cases. Some of the buildings reported to be affected were E. L. Harmer Ltd.'s store, the post office, drug store and the Provincial Bank. The jam broke later in the day and the water receded quickly.

The meadows between Norton and Bloomfield were also inundated, including the bridge approaches at Bloomfield.

At Newcastle, storm sewers were unable to cope with the excess runoff and many basements were flooded in the Pleasant Street area.

Magnitude: The freshet was described as "the highest in years, but scarcely so bad as expected, owing to the quantity of snow".

Damages: No estimates of damages were presented.

Flood of April 29 - May 9, 1923

Cause: Snowmelt combined with heavy rain and warm temperatures from April 28 to April 30. Some ice jams as well as log jams.

Description: This flood was significant in all parts of the Province.

In the Saint John River Basin, small dams were lost on the Oromocto, Meduxnekeag, Allagash and Kennebecasis Rivers. Bridges, mills and logs were lost all along the Saint John River and its tributaries.

C.N.R. washouts were reported at Riverside, Rothesay, Lakeside and on the Valley Line between Hampstead and Evandale. Washouts occurred along the C.P.R. Line at six points between Welsford and McAdam and within the City of Fredericton. The railway tracks at Lower St. Mary's were reported to be under one to three feet of water. A C.N.R. washout occurred at Marysville. On the Gibson Branch, two serious washouts occurred at Cardigan and Zealand Station. A railway bridge was partially destroyed at Florenceville. A washout at Blue Bell, Victoria County, on the Transcontinental, delayed rail traffic. The flood waters at Quisibis, Madawaska County, had tied up both the C.N.R and C.P.R. A washout occurred on the Temiscouta Line at St. Hilaire, and a railway bridge was destroyed on the Connors Brook Branch.

Twenty miles above Edmundston, the Caron Brook and Pelletier's Brook bridges were washed out. The Iroquois steel bridge was seriously damaged and the centre pier of the Green River bridge was swept away.

Perth, Andover and several towns in Maine were without electricity.

A bridge at River de Chute and two over the Muniac River, Victoria County, were damaged. Bridges at Shikatehawk near Bristol and Florenceville were destroyed. A bridge, grist mill and planning mill at Boundary Line were swept down the Presquile River to Centreville.

At Hartland, one house was completely turned over and other buildings were carried away. The town was without water or lights for about six days.

Bridges were lost on the Meduxnekeag River, one on the North Branch, one on the South Branch and a third at Woodstock. At Woodstock, a portion of the power dam went out and all buildings along the river bank were more or less damaged. The Electric Light and Power Plant had floated away and was found on Sugar Island above Fredericton. The Imperial Packing Company's plant was found on the shore at Douglas. Bull's Island was under water. The race track was submerged and the exhibition buildings were in danger of being carried away. At Grafton, opposite Woodstock on the Saint John River, the main road was inundated and several buildings were partially submerged.

Families were forced to abandon their homes in the Keswick Flats area and at Upper Keswick.

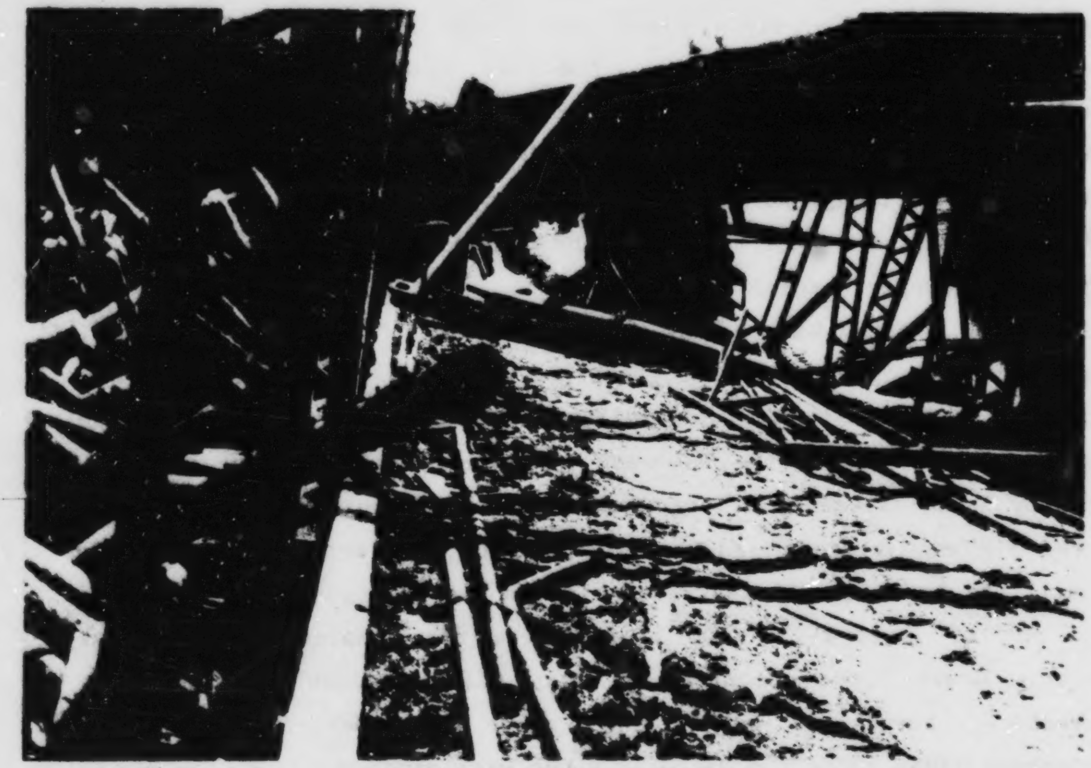
At Nashwaaksis, many basements were flooded, residents left their homes and the bridge was submerged.

In the Nashwaak River Valley, covered bridges at Durham, Penniac and at the mouth of the Nashwaak River were carried away. A dam at Stanley broke releasing a large quantity of logs which jammed against the steel highway bridge at Marysville, shifting the bridge about six feet. A mill had been carried away, and along a two mile section of river, only two out of a total of 100 houses were not completely surrounded by water. Great losses occurred to many farms through erosion, loss of livestock, barns and outbuildings which were destroyed or damaged. Telephone lines along the Nashwaak River were damaged.

The highways around Fredericton were inundated and a culvert was washed out at Corbett's Creek. At the peak, canoes were being used on Lansdowne, Alexandra, Grey and Winslow Streets. The intersection of Carleton and Brunswick Streets was flooded. Scores of basements were flooded. The street lights were off for a period due to the flooding of Maritime Electric Plant on Shore Street.

Families were forced to abandon their homes in the Maugerville-Sheffield area. The Maugerville-Sheffield area suffered damage to buildings and losses of livestock. Most livestock, however, was moved to higher ground across the river. Market gardeners in the area suffered a

Photograph 14



Collapse of Highway Bridge Due to Log Jam

Becaguimec at Hartland - 1923

Photo Credit: N.B. Provincial Archives

total crop loss because vegetable plants, placed in green houses for transplanting, were destroyed.

At Lower Jemseg, a lighthouse was overturned and waterfront barns and sheds were flooded at Gagetown. Several cellars were also flooded at Gagetown.

The Salmon River, at Chipman, overflowed at numerous places. The approach to the highway bridge was flooded. Several properties in the vicinity of the bridge were flooded above the first floor. Highwater was in evidence at Iron Bound Cove, Luther Brook at the peak was within a few inches of the bridge span.

Some damage to cottages, boats and recreational developments was reported along the lower sections of the Kennebecasis River. At Nauwigewauk, several people living in the Island Road cottages were forced to evacuate their homes when water entered the ground floors. The C.N.R. line was undermined and washed out at Lakeside and was also affected at Riverside.

At Hampton, the bridge over the river was completely submerged and partly washed out. Several houses near the river were completely surrounded by water and at least one house on Langstroth Terrace had to be reached by boat. Boats were also used to get from the village to the station, and it was reported that this was the first time this method had to be followed since 1887.

At Bloomfield, all the interval land was inundated. Some barns were affected and a 200 to 300 foot section of highway between the bridges was submerged.

At Norton, several buildings were threatened but the water receded before entering any structures. The water was said "to have reached a level six inches below the floor of B. Perley Wood's drug store".

Meadows in the vinicity of Apohaqui were reported to be inundated.

In Sussex, the approaches at the eastern end of the bridge on Maple Avenue was damaged considerably. Many basements throughout the town were inundated. The roads in the vicinity of Sussex Corner were badly washed out and a driving dam at the head of Trout Creek went out. A 60 foot section of the Rockville dam, five miles from Sussex, was carried out along with about six hundred thousand feet of logs, and the Rockville bridge was damaged.

In Waterford Parish, the roads were badly washed out and the Carr Bridge was taken out and several others were damaged.

In the Parish of Hammond, a portion of the dam at Dick's Lake was taken out.

At Indiantown, several warehouses, sheds and cellars were flooded on the lower part of Bridge Street. Flooding also occurred on a portion of Main Street. The ferry house was destroyed.

Telephone lines were damaged in the vicinity of Saint John.

On Marsh Creek, the boom used to protect the highway bridge broke, allowing a large quantity of debris to be carried down onto the bridge.

In the Restigouche River Basin, two washouts occurred on the Intercolonial Railway between Campbellton and St. Leonard's. The high water inundated a considerable distance of track near Grog Brook. An ice jam occurred at the Tide Head Islands and two small houses on McBeath Island were carried away.

In the Nepisiguit River Basin, an ice jam occurred at the Narrows. The jam broke naturally under the pressure of water and ice. At the mines, several buildings near the river were flooded and some were moved from their foundations.

The Miramichi River was described as being very high, full of logs, lumber and ice endangering bridges. A number of dams on the Upper Miramichi and tributaries were carried away. Bridges were destroyed or damaged, railway lines inundated or washed out, halting rail traffic between Newcastle and Fredericton. Several million feet of logs were adrift from broken booms. At Boiestown, long stretches of highways were inundated. The interval and railway line was under water at McNamee. The water was very high at Doaktown, where about two million feet of logs were lost by James H. Holmes Limited. Two small bridges were damaged in this area and portions of highways were inundated. The bridges were at Hurley Brook and at Blissfield. At Blackville, the highway bridge was flooded. One house near the bridge was carried off its foundation and the mill received damage. The houses in the lower portion of the village were vacated by the residents. On the Little Southwest Miramichi, a rotary mill was carried away and the Red Bank Bridge had been damaged by an ice jam. The bridge was closed to vehicular traffic. The Bartibog Boom was reported to have broken. In Newcastle, downtown streets were inundated, and it was stated that the water was deep enough on Castle Street to use rowboats.

At Nappan, Northumberland County, the Johnson School House Bridge was damaged (south of Chatham).

In Westmorland County, flooding of the C.N.R. mainline occurred at College Bridge and at Upper Dorchester, halting rail traffic between Moncton and Halifax.

In the Musquash River Basin, a portion of the earth wing dam on the West Branch was washed out. The flood of water carried with it three dwellings, a number of outbuildings and livestock. Clinche's Bridge at Musquash was taken and the railway tracks crossing the Musquash Marsh were damaged. Damage resulted in all low lying areas. The operation of the New Brunswick Electric Power Company's plant was disrupted as well as telephone service in the area.

In Charlotte County, culvert problems were experienced at Pocologan, Pennfield Parish. Five small bridges were destroyed in the Parish of Dunbarton and one in the St. James Parish.

In the Magaguadavic River Basin, the loss of lumber and pulpwood was tremendous. Telephones in the area were out of service. At Upper Trout Brook, the bridge was lifted clear of the abutments but secured by ropes. Several homes were flooded and the animals were driven to higher ground. The bridge at Lower Trout Brook was flooded. At Flume Ridge, the roads were inundated. A portion of the dam at MacDougall Lake was washed out. A covered highway bridge at Lee Settlement was carried away. The highway bridge at Second Falls was destroyed. Families in the community were forced to vacate their homes. At Bonny River, families were also forced to move from their homes. A bridge at Bonny Brook was destroyed. The highway between Bonny River and St. George was inundated. Several cottages at Lake Utopia were flooded. At St. George, heavy damage was sustained to the upper highway bridge. Booms at St. George broke and lumber was carried out to sea. The damage here was extensive and about 25 families were forced to leave their homes.

In the Digdeguash River Basin, a bridge at Rolling Dam was carried away.

In the St. Croix River Basin, bridges were washed out, homes flooded and factories closed. The International Bridge between Upper Mills, N. B., and Baring, Maine, was damaged when one end of the bridge was carried away. At Union Mills, two lumber mills on the Maine shore were destroyed. The American half of the Union Mills Bridge was swept away. At Milltown, Maine, the United States Customs Building was carried off its foundation. The American end of the International Bridge here went out under the pressure of water and logs. At Milltown, N. B., the McAllister Bros. grist mill was flooded and in danger of destruction. approximately 12 houses on South and Water Streets were partly submerged and the occupants were forced to vacate these homes. The Canadian Cotton Mill suffered extensively. One pier of the St. Stephen-Calais Bridge was damaged. Railway services in the area were curtailed.

Magnitude: A rainfall of 3.39 inches was recorded at Fredericton. The flood rose rapidly on the tributaries and the Upper Saint John to peak on or about April 30. At Van Buren, above Grand Falls, the flow was 134,000 cfs or 16.2 cfs per square mile. The river was reported as being the highest in 50 years at Grand Falls.

At Hartland, the level was reported to be seven inches higher than in 1887. A record peak daily discharge of 288,000 cfs or about 19 cfs per square mile was recorded at Pokiok.

At Fredericton, the peak fell 13 inches short of that reached in 1887. The peak at Fredericton was 26.25 feet above winter low level. At the mouth of the Nashwaak River, the water level rose eleven feet from the morning of April 29 to the afternoon of April 30, and was falling by May 1. On the Nashwaak, the flow past a small dam upstream of Marysville was estimated to be 40,000 cfs.

At Indiantown, the level started rising on April 30 and peaked around May 5 or May 6. There was controversy as to whether or not the maximum stage at Indiantown fell short of or exceeded that of 1887, but was probably about the same.

The Kennebecasis River was said to be higher than it was in the memorable floods of 1887 and this was the second flood this spring. "At Hampton, boats had to be used to get from the village to the station, the first time this method had to be followed since 1887."

The Nepisiguit River was reported to have risen 12 feet in 12 minutes due to the breaking of an ice jam.

The Miramichi River was said to have reached a level seven feet higher than ever before. The conditions at Millerton were said to be the worst known for years. Water was reported to be about two feet deep over the Blackville Bridge, and up to 10 feet deep on some of the streets.

At Brockway, on the Magaguadavic River, the freshet was said to be the highest ever known. The Magaguadavic River level was reported to be eight feet higher than any recorded during the past 91 years.

Unusually high tides were reported in the tidal reach of the St. Croix River. The river water level was reported to be the highest on record at Milltown. The water was reported to reach a height of three to four feet above all previous records.

Damages: The total damages in New Brunswick were estimated by the Premier of the Province, at the time of the flood, to be between five and ten million dollars. Damage in Madawaska County was estimated at $75,000.

At the time of the flood, the provincial Public Works Department estimated $450,000 damage to roads and bridges within the Province. The public accounts for 1923 and 1924 show expenditures on bridges, as a result of the 1923 freshet, totalling about $380,000 ($252,000 ordinary bridge expenditures and about $128,000 permanent bridge expenditures). About one-half of these expenditures were incurred in the Saint John River Basin. The Provincial Bridge Department records indicate 57 bridges were damaged or destroyed in the Province.

The railways suffered heavily during this flood. Most lines in the Province were impassible for periods varying from two days to a week.

The lumber companies also suffered heavy losses due to logs escaping from booms and mills being flooded. A $25,000 loss of logs was reported on the Kennebecasis and reports of broken booms came from all parts of the Province. Millions of feet of logs were being carried down the Restigouche, Miramichi and other rivers.

Telephone and electrical services were disrupted in sections of the Province.

In the St. Croix River Basin, the estimate of damage was in excess of $1,000,000. The losses at the cotton mill, at Milltown, was estimated to be between $150,000 and $200,000. About 700 employees were out of work for approximately three weeks. A crew of 200 men were employed in making repairs.

Property damage in the Magaguadavic River Basin was estimated to be $200,000. The principal losses were reported to be incurred by the Bonny River Lumber Company and St. George Pulp and Paper.

Two lives were lost during the flood. One man was drowned in the Magaguadavic River when his boat overturned in the flood swollen river. Another man was drowned while trying to save his livestock at Musquash. He was caught in the rush of water on the West Branch of Musquash River.

Flood of August 26 - 27, 1924

Cause: Heavy precipitation and high winds.

Description: Some crop damage resulted in York, Sunbury and Queens Counties mainly due to the winds and heavy rains. In Queens County, the Nerepis River overflowed its banks creating considerable damage.

The Maine Central trains out of Calais were cancelled due to several washouts. The streets of St. Stephen were flooded.

At Sackville and Moncton, "catch basins were taxed to carry off the miniature flood".

Magnitude: On August 26, heavy rainfall was reported to have occurred in Carleton County, at Moncton and Saint John. An official figure of 2.44 inches for Fredericton brought the present month total up to 4.04 inches. In August 1922, there was an abnormal precipitation of 5.77 inches.

Damages: Very little damage was said to have occurred. No damage was reported in either Sackville or Moncton.

Flood of May 5 - 7, 1926

Cause: Warm weather accompanied by rain.

Description: At Woodstock, river properties were inundated to some extent.

The warehouse at the foot of Regent Street in Fredericton was flooded to a depth of several feet (??).

The river roads at Upper Maugerville and Oromocto were reported to be inundated.

No description of magnitude or damage was available from The Daily Gleaner.

Flood of May 8 - 9, 1926

Cause: Easterly gale and high tides.

Description: At Newcastle, the easterly gale pushed the high tides over the top of many of the wharves along the waterfront.

Some logs were lost on the receding flood.

Magnitude: The tides were reported as not being as high as those of a year previous.

Damages: No estimates of damage were presented.

Flood of October 25 - 26, 1926

Cause: Heavy rainstorm.

Description: In Kings County and the Province in general, considerable damage was caused to roads and bridges as a result of the heavy runoff.

In the vicinity of Sussex, all the lowlands were inundated and many cellars were filled with water.

At Waterford, the Carr Bridge on Creek Road was almost washed away, and a retaining wall above the bridge (built three years previously) was damaged considerably. The approach to the Madden Bridge, further up Trout Creek, was washed out.

Two 12 foot spans on the McNutt Flat were washed out and immediate repair was required.

In the Parish of Havelock, the Freeze concrete culvert and roadway embankment were badly damaged. The report stated that "7,000 loads of new fill had recently been placed there".

In the Parish of Studholm, the Schofield Road between Millstream and Pleasant Ridge was "so badly washed as to render it impassable".

Magnitude: The flood was described as "high conditions were generally worse than can be remembered at this time of year, the water rising to such a height as rivalled the highest spring freshets in memory".

Damages: "Reports from various parts of the Province indicate that the storm was general and undoubtedly damage running into many thousands of dollars had resulted."

Flood of August 24 - 25, 1927

Cause: Torrential rain and high winds resulting in heavy seas.

Description: In Kings County, the upper reaches of the Kennebecasis and Millstream Rivers were reported to be in full freshet. The interval lands from Penobsquis to Apohaqui were reported to be totally submerged resulting in crops being washed out or damaged.

In the Millstream Valley, the Jones Bros. mill was closed due to the high water. At McAuley's Corner, two feet of water were reported to be over the main highway.

At Sussex, many cellars were inundated and some homes were evacuated as a precautionary measure. Water in the river parallelling Main Street overtopped its banks, inundating the area between the Kings County garage and the bridge near Trinity Church. This portion of Main Street was reported to be passable, however most of the intersections to the side streets were washed out.

The Church concrete bridge, one-half mile east of the Post Office was badly undermined, washing out an abutment, resulting in the concrete slab being broken.

Another bridge, at the eastern end of Main Street near the Agricultural School and Armoury, had its approaches washed out. Three footbridges over Trout Creek were washed out including the Military Bridge.

At the Wallace Manufacturing Company, some lumber was said to have been lost and the floodwaters were stated to be "three feet deep in front of the office building".

A culvert washout at Horseman's Hill, five miles west of Moncton, resulted in the hospitalization of four persons when their vehicle plunged into the void created.

In Albert County, damages were reported to be widespread and particularly heavy in the Shepody Valley. Numerous highways and bridges were damaged or destroyed in the Riverside, Hillsboro and Hopewell Hill areas.

The effect of the storm was felt throughout Westmorland County.

At Moncton, several streets were flooded and the two subways in the west end were inundated. The water in one of these subways was reported to be at least five feet deep. Both Johnathan and Hall's Creeks were reported to be well above flood stages.

Washouts on the main C.N.R. line occurred at some points such as: Humphreys, two miles east of Moncton, causing delays in service; and on the St. Martin's, Albert and Shediac Branch lines where numerous minor washouts were reported.

A 30 foot bridge over Atkinson Brook on the Chatham Post Road was undermined (one-third of a mile north of Chapman's Corner).

At Memramcook, a 10 foot high concrete dam at St. Joseph's College collapsed under the high flows "releasing a torrent of water through the neighbourhood". No other damages were reported in this area. The dam was used as storage for power production.

At Palmer's Pond near Dorchester, the trunk road bridge was reported to have been washed out.

In the Sackville area, several culverts and some roadways were reported to be washed out.

Damage along the Northumberland Strait was reported to have occurred from Little Capé to Shediac Cape as a result of the storm.

In Shediac Bay, wreckage from boats, floats and wharves was reported to be strewn along the shore for miles.

At Pointe-du-Chene, the derrick boom on the breakwater was swept away. Lobster floats, small boats and other debris were reported to be swept ashore and damaged. Some of the wreckage was reported to have been swept inland to the ditches on Pleasant Street.

A 60 foot bridge over the Upper Aboujagne River at the Kinnear-Black mill site was damage by undermining.

At Aboujagne, the centre stringer of the Simpson-Roberts Company wharf was washed out and several boats were sunk or damaged.

Twenty boats in the vicinity of Little Capé were damaged or destroyed.

Magnitude: At Saint John, the storm was reported to have dumped 3.32 inches of rain, bringing the total for August to date up to 8.34 inches.

At Moncton, the total rainfall for the storm was reported to be in the order of 3.70 inches. The winds accompanying the rain storm were stated "to be as high as 45 miles per hour".

The rainfall recorded at Sussex during the storm was 2.42 inches. The oldest residents of Sussex stated that this was "the most severe August freshet in memory".

Damages: In the Shepody Valley, the damages were reported to be in the several thousands of dollars range.

The New Brunswick Department of Public Works estimated losses and damages to roads and bridges in Westmorland County to be in the order of $50,000.

Damages to hay, grain and other crops throughout the area were said to be extensive.

Considerable damage to small boats and wharfage along the Northumberland Strait shore was also reported, however no estimates were presented in the newspaper accounts.

Flood of April 7 - 11, 1932

Cause: Mild temperatures, ice breakup and jams.

Description: As a result of the spring thaw, several ice jams caused minor flooding throughout the Saint John River Basin. Most of the resultant damage was reported from the Fredericton area.

An ice jam had formed at Bath during the winter, and the spring freshet caused some flooding in this area until it was breached. Another jam was reported at the bridge in Florenceville which broke under its own pressure shortly after being formed. A huge jam was reported below Hartland.

At Woodstock, ice damaged some timber supports and carried others away on the approaches to Island Park.

At Crock's Point-MacKinley Ferry, an ice jam resulted in water levels rising to the height of the C.N.R. road bed. This jam broke under its own pressure and resulted in the rapid rise of water levels downstream.

In Fredericton, the situation was aggravated by an ice jam near the Dominion Agricultural Experimental Station which forced the ice cover high up on the banks on both shores of the river. At the West End Bathing Beach, the dressing rooms and shade trees sustained damage from the ice. The Federal Government wharf behind City Hall sustained extensive damage as a result of the ice. Ice was reported to have been forced up and across Campbell Street to within a few yards of the Normal School fence. A brick warehouse and office near the foot of Regent Street was completely demolished by the movement of the ice. Poles carrying electric and telephone wires were cut off. Several boats laid up at the foot of Westmorland Street were also extensively damaged. At the Fredericton A & B Club, there was minor damage to the building and float. At the C.N.R. bridge, cables carrying wires across the draw-span were torn out.

Some ice jamming was also reported down river in the islands around Maugerville-Sheffield. The wharf at Sheffield had several timbers torn out on both the upper and lower piers.

A tugboat on the banks of the Oromocto River was reported to have had its stern crushed by ice.

Magnitude: According to records taken at the Fredericton Pumping Station, the Saint John River rose some 16 feet following the ice jamming.

Damages: No estimates of damage were reported. A three year old girl was drowned at Keegan, Maine, when swept through a culvert.

Flood of April 10 - 16, 1932

Cause: Thawing temperatures, rain and ice jams.

Description: An ice jam occurred against the Interprovincial Bridge across the Restigouche River. When it broke, another jam occurred just east of Flatlands. Long Island was submerged. Some basements were flooded in the low lying districts. Considerable amounts of lumber were reported adrift throughout the river basin.

Magnitude and Damages: No reference was located to describe the magnitude or extent of damages resulting from the freshet.

Flood of September 14 - 20, 1932

Cause: A decaying equinoctial storm causing rainfall.

Description: The storm resulted in flood stages at Presque Isle and Limestone, Maine.

Three spans of the Upper Dorchester Bridge over the Memramcook River collapsed in the wind and waves.

The road at Eel River Bar near Dalhousie was damaged. Private and public buildings in the area were heavily damaged.

Magnitude: The fall freshet was reported to be the most severe since 1920 or 1921. The equinoctial storm was said "to be the worst since the Saxby Gale". The tides were higher than usual, reaching 40 feet in the Memramcook Valley area.

Damages: The damage to roads and railways in coastal areas was stated to be heavy because of high winds and waves. The bridge at Upper Dorchester was built in 1924-25 after being destroyed by high tides during the war years.

Flood of October 17 - 30, 1932

Cause: Severe fall rainstorm (abnormal autumn rainfall of a three day duration).

Description: At Woodstock, the Saint John and Meduxnekeag Rivers were running at peak freshet height. The Fredericton to Woodstock highway was inundated at several points. The principal points where damage occurred were Pokiok, Meductic and the Barony.

In the Keswick Valley, the flood also caused considerable damage. The C.P.R. was inundated at various points and washouts occurred at Newbury and at Barton below Millville.

In the Nashwaak Valley, the Tay Bridge was carried away. The C.N.R. line from Fredericton to Newcastle was under several inches of water.

Magnitude: The freshet was said to be the most serious in the Nashwaak Valley since 1923.

Damages: The damage reported to have occurred was to roads and railways. In the Nashwaak Valley, some cattle and lumber was lost.

Flood of May 4 - 6, 1933

Cause: Heavy rains, melting snow and possibly ice jams throughout New Brunswick and Eastern Quebec.

Description: Flood conditions on the Saint John River existed at Fort Kent, Edmundston, Hartland and Woodstock. High flows were recorded in the upper portion of the Saint John River Basin.

Significant damage occurred at Fort Kent, Maine, to businesses and residences. This damage was due to flooded basements and many homes were temporarily abandoned.

On the Edmundston Sub-division of the C.N.R., rail traffic was halted due to flooded railway tracks. A section of tracks were undermined near Edmundston, causing a freight train to be derailed. The main highway at Green River was reported to be covered with several feet of water.

At Hartland, the lower flats were badly inundated, surrounding a home and several outbuildings. The mill was closed when it became inundated.

At Woodstock, the road to Island Park was inundated.

The Keswick River placed roads under two feet of water in various areas.

The islands above Fredericton were reported to be inundated.

Some highways in York and Sunbury Counties were inundated. The Oromocto Flats were inundated and a ferry was operating over the highway. The Maugerville-Sheffield highway was also inundated as well as the highway from McGowan's Corner to Lakeville Corner. The interval at Gagetown was flooded.

At Indiantown, several warehouses and sheds were inundated. Some residents of Bridge Street, River Street and Spar Cove Road were isolated. On Main Street, a store was completely surrounded by water.

In the Restigouche River Basin, high water caused considerable damage to the I.N.R. tracks. Trains were tied up by a weakened bridge near Millerville. The rivers and brooks near Campbellton were reported as being very high. Summer homes along the banks of the Matapedia and Upsalquitch Rivers were damaged. A C.N.R. line near St. Quentin was washed out.

Magnitude: At Fort Kent, Maine, the level was the highest reached in a 35 year period prior to May 1961. At Edmundston, the river reached its highest level for the 10 years following 1923. North of Grand Falls, the river was higher than anytime in the past 35 years. A new freshet level was set at Woodstock which apparently was the highest since 1923. The maximum daily mean discharge at Pokiok was 223,000 cfs, and at Fredericton the level was 21.9 feet, 19 feet above summer low. This water level was the highest point since the freshet of 1927. A 27 foot tide was recorded at Saint John. The water level at Indiantown was up to a point higher than any since 1929.

Damages: No monetary estimates of damage were reported in the newspapers, however these casualties were recorded:

An engineer with the railway lost his life when a train was engulfed by a break in a weakened culvert at Blue River (possible Eastern Quebec). Another life was lost when a stream driver fell into the turbulent waters of Tracey Brook near Kedgwick. A third life was lost in the derailment of the C.N.R. freight near Edmundston due to undermined railway tracks.

Flood of October 25 - 26, 1933

Cause: Heavy autumn rainfall in southern New Brunswick.

Description: At Fredericton, a railway washout occurred just east of the C.P.R. station. The Fredericton district was said to have suffered extensively as a result of the storm.

In the southern New Brunswick districts, extensive damage was caused to highways, railway lines, bridges, root crops and livestock was marooned.

In Queens County, the highway between Oromocto and Welsford was reported to be inundated at several locations. A highway bridge at Armstrong's Corner was swept away. Highway #9 was also reported to be closed at Coles Island and Long's Creek due to washouts as a result of the high water.

In Kings County, the damage was widespread. The Kennebecasis River valley was described as "a veritable sea of water from Penobsquis to Hampton and throughout the Millstream district." The main highways between Sussex and Saint John, Sussex and Moncton, and Sussex to Fredericton were impassable due to washouts. At least 12 highway bridges throughout the county were reported to be carried away or severely damaged. Rail service was also interrupted due to a washout about 2.5 miles east of Penobsquis.

Two dams at the Head of Millstream were lost. At Lower Millstream, some residences were completely surrounded and several outbuildings were reported to have been swept away. The roads throughout the area were said "to be under some five feet of water."

At Sussex, the water was reported to have risen to within three feet of the railway bridge on Maple Avenue, inundating a 100 foot section of the road east of the highway bridge. From the Kings County Garage to Ward's Creek Bridge, the highway was reported to be inundated to a depth of two feet. O'Connell Park and surrounding area was also flooded. The dam at the pumping station was reported to be overtopped, isolating the pumping station and inundating a portion of Magnolia Avenue. Numerous basements throughout the town were inundated. The highway and meadows between town and Sussex Corner was reported to be under water. The highway from Sussex Corner to the Trout Creek Bridge was reported to be inundated for about one-half mile with varying depths of two to six feet.

In Kent County, the St. Charles Bridge, over the Big Aldouane River about three miles from Richibucto, was carried away.

In Westmorland County, a washout on the C.N.R. line near Petitcodiac disrupted rail service.

In Saint John County, the Big Salmon River was at flood height.

Magnitude: At the Dominion Experimental Station, Fredericton, a rainfall of 3.06 inches was recorded. A 3.59 inch rainfall was reported during the same period for Sussex. A 4.90 inch rainfall was recorded at Rexton, Kent County. At Sussex, the Kennebecasis River was reported to have reached its highest level in 10 years. At Lower Millstream, water levels were reported to be within a few inches of the bottom of the bridge.

Damages: Seven stream drivers were swept to their death in Saint John County by the Northwest Branch of the Big Salmon River while trapped on a sand bar.

The damage was reported to be especially heavy in Kings, Kent and Westmorland Counties, but no monetary figures were presented.

Flood of April 16 - 24, 1934

Cause: Continuous rainfall for several days, with snowmelt and ice jams.

Description: In the Saint John River Basin, the areas most affected by this flood were Sunbury and York Counties. The low lying areas around Maugerville, Sheffield, Jemseg and Oromocto as well as areas along the Kennebecasis were inundated.

An ice jam formed four miles above Plaster Rock. When the ice jam broke, two 100 foot spans of the main highway bridge were destroyed. Another ice jam occurred at Oxbow on the Tobique River some 15 miles upstream of Plaster Rock. The ice jam was reported to about five miles long. At Wapske, the C.P.R. was reported to be under two to three feet of water. At Plaster Rock, ice, lumber and debris littered the C.P.R. lines and the station yard. A considerable quantity of sawn lumber was lost.

Washouts and inundated sections of railway lines and highways disrupted rail and highway traffic throughout the Saint John River Valley.

At Woodstock, the Island Park Road was damaged by ice and debris. The Exhibition Building was partially submerged. The highway at Grafton was inundated.

An ice jam at Sugar Island was responsible for the inundation of the tracks on the Centreville Sub-division of the C.N.R. in this area. The Keswick River overflowed and inundated the highway near Burtt's Corner. The C.P.R. was inundated near Barton. The ice jam at Sugar Island was also responsible for the flooded tracks at McKinley Ferry.

At Fredericton, basements were flooded in many parts of the City and Devon. The city warehouse at the foot of Regent Street was damaged by ice. In the Nashwaak Valley, cattle were drowned, houses and barns flooded and some poultry was lost. The highway was inundated in the vicinity of Durham Bridge and at Taymouth. All the highways to the south of Fredericton were blocked by water. Water was over the highway at Carman Creek Bridge and the White Bridge at the mouth of Corbett's Creek. The Minto Line of the C.P.R. was washed out at three points between Barker's Point and Cotter's Siding.

An ice jam occurred at Gilberts Island and stretched to Upper Maugerville. In the flats below Fredericton, hundreds of families were forced to vacate their homes or move to the upper floors. Barns were lifted from their foundations, greenhouses were destroyed, pigs drowned and all communications were disrupted for several days. Four hundred head of cattle and horses were moved to higher land by barge. Fox farmers at Gagetown and Maugerville reported losses of foxes. The lighthouse at Gagetown was reported as having succumbed to the freshet.

Scores of summer homes and cottages along the lower Saint John and Kennebecasis Rivers were inundated. The Saint John to Moncton highway was inundated at Lakeside. At Indiantown, a number of homes in the lower section were partially surrounded by water if not completely inundated.

Near Saint John, the lower dam of the Little River Reservoir was washed out. Flood waters were also reported to have entered warehouses and other property in the Indiantown area of Saint John.

In the Restigouche River Basin, rail and highway traffic was disrupted by washouts and ice jams. On the I.N.R. at Mile 19, highwater in Grog Brook washed out a 65 foot section of track. A section of C.N.R. track was washed out above Matapedia. In Matapedia, the hotel and other properties were flooded. Livestock, household goods and business stocks were lost. An ice jam at Matapedia was less than four feet from the top of the railway bridge piers. An ice jam in the main Restigouche River occurred at Bells Island and was reported to be 12 miles long. Along the river between Tide Head and Matapedia, the islands were awash and summer camps damaged. At England Flats, a guide house, dining hall and cookhouse were damaged. At Indian House, the guides quarters were damaged. At the mouth of the Patapedia River, the guide shanty was damaged. Damage also occurred at Red Bank Camp and Pine Island. A quantity of lumber, logs and pulpwood was swept out to sea. The mill at Atholville was forced to close when the pump house was flooded. The electrical motors were removed for baking (drying).

The Nepisiquit River overflowed its banks above the pumping station at Rough Waters when the river below the station became blocked with ice. The running ice in the lower reaches of the Nepisiquit wrecked a tower of the Bathurst-Great Falls Transmission Line. The break in service and highwater forced the pulp mill to shut down.

In the Miramichi River Basin, an ice jam occurred at McNamee and several summer cottages were torn from their foundations. The railway line at McNamee was inundated. Sections of highway were severely damaged in the Renous-Quarryville area and blocked by ice cast ashore. Property and dwellings also suffered greatly in this area. An ice jam occurred at Middle Island below Chatham. When this jam broke, large cakes of ice were piled some 20 feet high on the shores.

In the Magaguadavic River Basin, the pulp mill at St. George was forced to close because of the high water. The highway from St. George to Bonny River was said to be impassable but it is not known whether this was because of inundation.

In the St. Croix River Basin, washouts occurred on the railway lines in the State of Maine. Trains were re-routed through Calais-St. Stephen because highwater at Milltown inundated the Branch Line there connecting the two systems. Portions of the old barriers at Union Mills and Baring had given way and concern was expressed for Grand Falls Dam under the high head of water.

Magnitude: An ice jam four miles above Plaster Rock on the Tobique River broke on April 17 causing the level to rise 8.5 feet in two and one-half hours. The level at Plaster Rock, following the breakup of the ice jam was the highest ever recorded during a spring freshet but was still 20 inches below of the level reached in June, 1922.

At Fredericton, the level steadily increased from April 17 to peak on April 22. The level then fell on the April 24 and April 25, recovered slightly April 26 and then receded. At Indiantown, the level peaked about April 26.

The maximum daily mean discharge at Pokiok was 253,000 cfs. At Fredericton, the level was 24.4 feet, this was 2.2 feet lower than the 1923 level. The Salmon River at Chipman was reported to have reached the 1923 level. At Woodstock, it was the highest since 1923 and at Gagetown, it was three inches below 1923.

At Matapedia, in Restigouche River Basin, the water level was reported to be nine feet higher than the level of 1933. This level was only one foot below the level of the record freshet of 40 years ago.

The freshet conditions on the Nepisiquit River were said to be the most serious in many years.

On the lower Miramichi, the ice jam and water was reported as being the worst for a great number of years.

Not since the freshet of 1923 has the danger of bursting dams been so great in the St. Croix River Basin.

Damages: Overall damage to farms and other property was estimated in newspaper reports to be $250,000.

The New Brunswick Government has records of expenditures on roads and bridges arising from the flood. They are as follows:

COUNTY	ROADS	BRIDGES
Kings	$ 6,150.71	$5,531.71
Queens	$11,674.75	-----
Sunbury	$24,136.58	-----
York	$ 419.28	-----
TOTAL	$42,381.32	$5,531.71

The newspaper reported that the damage to the Plaster Rock Bridge was estimated to be in the vicinity of $17,000.00. Roads were damaged south of Fredericton and along the Kennebecasis River. At least a million feet of lumber was lost in the Grand Falls and Woodstock areas. Railway schedules were disrupted in several areas. One farmer estimated his loss of foxes in the Maugerville area at $2,000. Damage in the Maugerville-Sheffield area was placed near $100,000 inclusive of both private and public property.

The damages in the Restigouche River Basin were said to run into many thousands of dollars.

A considerable amount of damage was reported to have occurred on the Southwest Miramichi.

Flood of January 9 - 12, 1935

Cause: Two days of snow, sleet and rainfall. The rainfall totalled about five inches at Saint John. Some ice jams were created by the record breaking thaw.

Description: Hundreds of acres of land were inundated along Rothesay Road. Cellars in the district were flooded and portions of highways submerged. An ice jam occurred at the mouth of Marsh Creek creating the majority of the problem. The schoolhouse at Glen Falls was completely surrounded by water.

Ice cakes from swollen streams between Hoyt and Fredericton Junction resulted in broken telephone lines. Telephone service was disrupted between Woodstock and Newcastle to Montreal. Men were working from boats to repair the damage.

In the Sackville area, the marshes resembled lakes and many business premises were reported to be flooded. The water was reported to be up to the office windows of the Super Service Station on Lorne Street. Main Street was also reported to be inundated from the rink to the Cole Block.

At Frosty Hollow, the highway was inundated to a depth of more than three feet.

Magnitude: The water in Marsh Creek was said to have risen gradually without the destruction of usual floods. Spruce Lake was said to have reached its highest recorded level. At Sackville, the flood was described as "the worst freshet experienced for many years".

Damages: Goods were damaged in the basements of Sackville businesses. The Super Service Station reported losses in the order of $185.00.

Flood of April 20 - 24, 1935

Cause: Spring thaw, ice jams accompanying break-up.

Description: In the Saint John River Basin, some barns on the islands above and below Fredericton were damaged and/or destroyed, in particular on Shore Island. At McNally's Ferry, a bridge was knocked off its foundation and a house was completely surrounded by water. The Long's Creek Bridge was under water. In Fredericton, some damage resulted to waterfront property by the ice run. The brick warehouse, on Regent Street wharf was damaged for the third year in a row. An ice jam occurred between Victoria Mills and the Dominion Experimental Station. The Fredericton to Moncton Highway was inundated in places. The highway at Oromocto Flats was flooded. Some homes along the river were damaged by ice and telephone service was disrupted in the Maugerville and Cambridge areas when poles were destroyed by ice.

An ice jam north of Sussex Corner, in the Trout Creek Bridge area, resulted in 14 inch ice pans over Route #111.

An ice jam occurred in the south channel of the Restigouche River downstream of Matapedia. The mill at Atholville ceased operation due to the high sediment load in the river during the freshet. As a result of the ice, the placement of log booms was hampered.

In the Miramichi River Basin, ice jams occurred at Doaktown and McNamee. The C.N.R. were using dynamite in order to release these jams.

Magnitude: No information with regard to the magnitude was reported in the newspapers.

Damages: No estimates of damage were reported in the newspapers. The damage reported appeared to be related to services and caused by ice.

Flood of March 16 - 25, 1936

Cause: High temperatures for two days caused the unusually early spring breakup with some rainfall. Ice jams resulted in most parts of the Province.

Description: One of the most significant ice jams occurred at the C.N.R. Bridge in Fredericton, giving record breaking flood levels in that city. At the peak, three-quarters of the business district of Fredericton was flooded with about a foot of water lying on Queen Street from St. John Street to the lower end of Waterloo Row. The bridge was destroyed by the jam.

Following the breakup of the jam at Fredericton, another jam formed at Sheffield and extended up river to Burton. This jam caused inundation of about 150 square miles in the Maugerville area.

Other jams were reported on the Saint John at Long Reach, at Keswick Island, at Long's Creek and McKinley Ferry, on the Oromocto near Blissville, on the Nashwaak just below Durham, on the Nackawic at Cullerton, on the Meduxnekeag at Duthies Interval, on the Tobique at Ogilvies above Plaster Rock and on the Allagash, Green and Presquile Rivers.

A large ice and log jam also formed on the Upper Saint John at Quisibis. When this jam was blasted out, logs were observed to pass from Grand Falls to Fredericton in 24 hours.

Edmundston was isolated from the south for a period of time due to the ice jam at Quisibis. At Quisibis, water was over the railway lines; highway and telephone lines were taken out. The farmers in the area were forced to leave their homes.

Families along the Tobique River were forced to move to higher ground. The new bridge at Plaster Rock was damaged. A warehouse and the C.P.R. station were also flooded causing some damage. A bridge over the Little Salmon River in Victoria County was damaged. A bridge was also damaged at Rockland on the Little River near Grand Falls. The Ellis Bridge at Carlisle on the North Branch of the Becaquimec River was damaged. The C.P.R. was washed out between Hartland and Stickney.

Two dams went out on the Meduxnekeag. At Woodstock, houses on the interval had cellars flooded and in some cases the water was over the lower floor. At Grafton, the main road was inundated and the small bridge over Wright's Brook was submerged.

On the Nackawic Stream, running ice damaged the C.P.R. bridge at Cullerton as well as a highway bridge in the area. C.N.R. bridges were washed out or damaged on the Fredericton-Centreville line at Eel River and Longs Creek. The highway bridge at Jewetts Mills on the Mactaquac River was destroyed or damaged as well as the bridge at the Mouth of Keswick. The C.N.R. tracks were flooded at McKinley Ferry and the Woodstock-Fredericton highway was inundated at Garden Creek. A number of barns on the islands above Fredericton were carried away. The Nashwaaksis covered bridge was heavily damaged and the main road near the old wagon factory was under several feet of water. In North Devon, Friel's Creek overflowed its banks and inundated a portion of the highway.

A rail line washout occurred near Durham where one and a half miles were destroyed and another above Taymouth. The highway was covered in sections at Durham. The piers of the Munroe Bridge over the Nashwaak and the power lines across the Marysville Flats were damaged.

In Fredericton, the waterfront area suffered extensively. Cellars along Queen Street were flooded to various depths and Brunswick Street in the vicinity of Carleton Street was under water. A six block area or so was partially or almost totally inundated from Northumberland Street to York Street and from Victoria Street to Aberdeen Street. The area from York to Westmorland and back to Argyle and the southern portion of Victoria Street received the brunt. On Alexandra, Grey, Lansdowne and Winslow Streets, the water was high enough to be on the lower stories of many houses and occupants were forced to the upper stories. The water was well over the floors of some houses at Victoria Mills. At Lower St. Mary's, a number of people left their homes and took their livestock with them. Those who remained were forced to occupy the upper floors. The Minto Sub-Division of the C.P.R. was under water for a distance of between five and six miles. A C.N.R. washout occurred at Lincoln, and a C.N.R. bridge was washed out or damaged near Gagetown. Highway bridges were washed out or destroyed at Bailey, Blissville and Hoyt in the Oromocto River Basin. At Hoyt, the railway station and several houses were isolated and livestock was lost. A small highway washout occurred at Geary. At Oromocto, ice damaged power and telephone lines disrupting service to Maugerville and Gagetown. Washouts occurred on the C.P.R. main line at Wirral and west of Welsford.

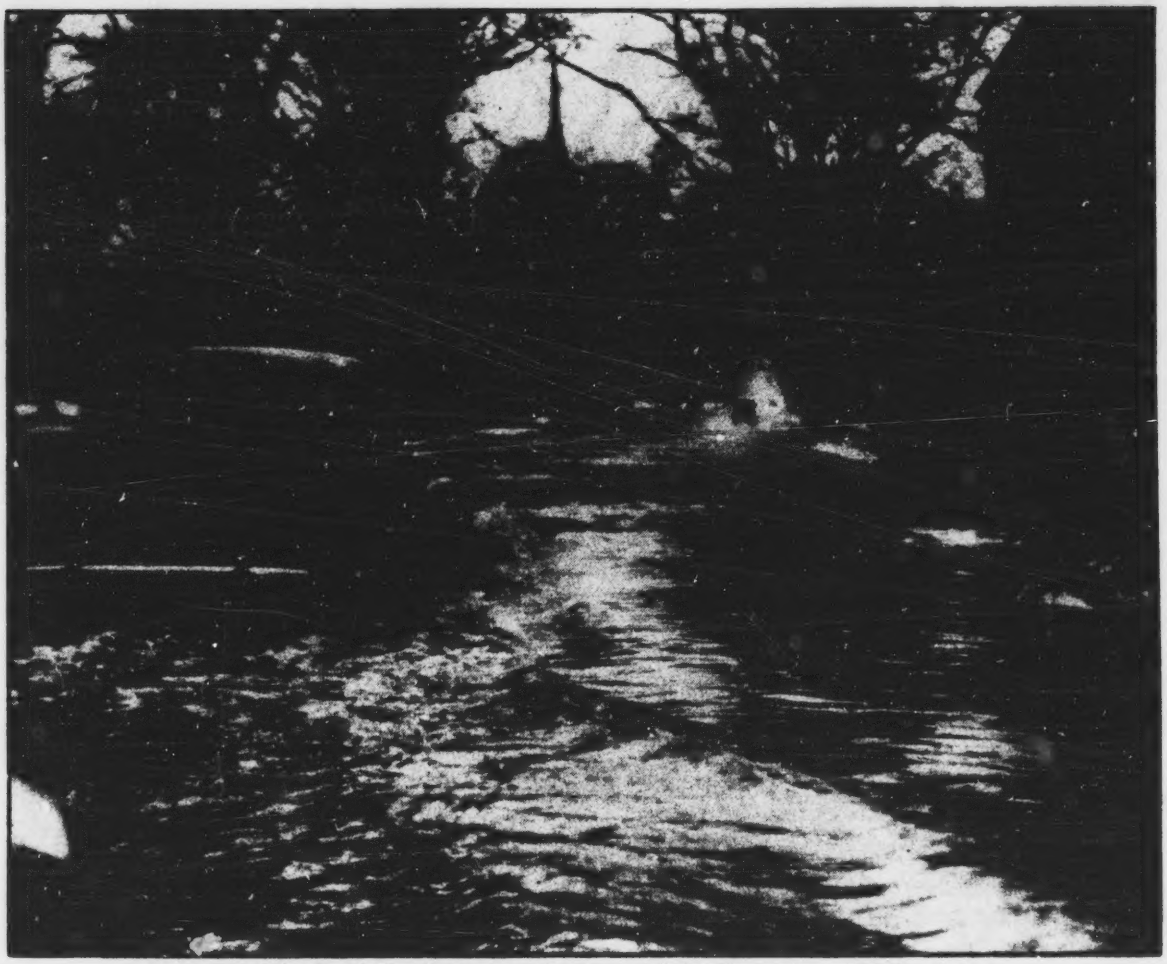
At Gagetown, the rear of buildings on Main Street were partially submerged and numerous basements were flooded.

Barns filled with hay and machinery were swept away at Hampstead and Wickham, Queens County.

At Belyea's Point, the lighthouse was torn from its base and carried downstream by drift ice.

Cottages were reported as being deep in water at Crystal Beach, Woodman's Point and at Westfield. Other less severe damages were reported to have occurred at Oak Point and Holderville.

Photograph 15



Intersection of Carleton and Brunswick Streets, Fredericton

March 19, 1936

Photo Credit: N.B. Provincial Archives

Photograph 16

Saint John Street, Fredericton during Morning of March 20, 1936

Photo Credit: N.B. Provincial Archives

Along the Kennebecasis River, flooded areas were reported to be at Norton, Hampton and Rothesay. At Norton, the flooding was said to be extensive forcing people to evacuate their homes. Darling's Island was cut off from the mainland with three feet of water over the road to the bridge. Ice was also reported to be over the road at Wilcox Brook. At Hampton, the water was reported to be up on the Cemetery Road.

At Rothesay, families abandoned their homes and the park was cut off when the lower end of the road became submerged.

In the Restigouche River Basin, the flood conditions were bad as water and ice battered its way downstream. Ice jams occurred at several locations throughout the basin. The Patapedia and Upsalquitch Rivers ran to combine in one of the worst floods the area had ever witnessed. The ice ran in the Kedgwick River and piled up at Tracy Brook. An ice jam occurred at Routhierville, Quebec (Matapedia River) causing a washout on the main line of the C.N.R. and halting traffic for several hours. When this jam broke, the ice was said to be passing St. Alexis in a very short time. Another ice jam occurred at Matapedia Bridge. An ice jam occurred in the main branch of the Restigouche River west of Campbellton on the islands and extended from the lower end of Tide Head to above Morrissey Rock near Flatlands. The ice runs battered the shores, uprooted fences, damaged cottages and boathouses and covered rail lines. Large crews were employed on railway repairs throughout the area. At Flatlands, the government fish hatchery was inundated.

Along the I.N.R., Grog Brook covered several bridges and halted train service.

The community of Matapedia, Quebec, suffered a heavy blow. The lower parts of the town were inundated. The Restigouche Hotel was considerably damaged by water and ice.

At Sillarsville, outbuildings, livestock and dwellings were prey of the freshet. From Flatlands, reports of cattle being lost were received and similar reports from Broadlands were unfounded. Damages were reported at Tide Head, where Christopher Brook raced to join the freshet.

Campbellton was reported as not being as hard hit as other areas in the county. Town employees were busy trying to keep the drainage system clear. Several basements were flooded. Walker Brook overflowed its banks at several points, covering the highway to a depth of a foot or more.

In the Eel River and Charlo Districts, low roads were completely flooded and several small bridges were endangered. Jardine Brook in the western section of the County and Jacquet River, in the eastern portion overflowed inundating the surrounding country with a great expanse of water and ice.

In the Miramichi River Basin, several ice jams occurred. On the Little Southwest Miramichi, a tributary of the Northwest Branch, two large farms were completely inundated at Upper Halcomb. An ice jam occurred at Cassilis on the Northwest Miramichi. The Southwest Miramichi was reported as breaking up and jamming at several places. At Boiestown, the Norrad Bridge was damaged by the heavy ice run. In the Renous-Quarryville section, the highway was reported to be inundated in one place. A huge ice jam occurred at Elm Tree Brook about four miles upstream of Bryenton. The ice was reported to have piled up at Nelson and also at the bridge between Newcastle and Chatham Head. Dynamite was used to break the ice jam at the bridge. Some streets in Newcastle were flooded in sections for several days.

In Albert County, the Five Points Bridge at Little River near Salisbury was damaged.

In the Magaguadavic River Basin, the river was described as being on the rampage at Bonny River and Second Falls. At least ten families were forced to evacuate their homes in these communities. Cellars were flooded, destroying provisions and other effects, and some homes were damaged by drifting ice. An ice jam occurred at Second Falls just downstream of the bridge. The road was impassable between Bonny River and St. George. Extensive damage occurred to the telephone lines in the district. An ice jam also occurred at St. George near the pulp mill. A quantity of logs were lost.

In Charlotte County, at least seven bridges were swept away by ice and high water and several others were weakened. Bridges that were swept away were the covered bridge over the Digdeguash River at Rolling Dam, two above Rolling Dam and the Red Bridge at Elmsville, as well as a railway bridge in this vicinity. The Strange Bridge over the Waweig River at the head of tidewater and a bridge on Bartlett's Mill Road were destroyed. A structure was also carried away at Chamcook (McCann's

Corner). Trains were delayed in the area due to flooding in the vicinity of Moore's Mills and Honeydale. On the St. Andrew's Branch, a washout occurred near Watt Junction.

In the St. Croix River Basin, the flooding did not seem to be as severe as in the eastern portion of Charlotte County. At Milltown, precautions were taken at the cotton mill. Bulkheads were installed to prevent water from entering the weave shed, shops and basements. Damage to the cotton mill was slight. The sidewalk of the International Bridge collapsed and the railway trestle above the mill was severely damage by the ice. McDougall Brook was flowing over Pleasant Street and the Bog Bridge was flooded. At Union Mills, Union Brook overflowed across Main Street. At St. Stephen, King Street was inundated near the government garage and some cellars were flooded.

Magnitude: Significant damage was caused by ice jams and floating blocks of ice which were reported to be 16 to 18 inches thick and 50 feet square. The peak flow at Pokiok was 231,000 cfs. Stages at Indiantown and Woodstock were reported to have reached those of 1934. At Fredericton, the ice jam caused a level of 29.2 feet, nearly 25 feet above summer level. The South Branch of the Oromocto River in the Blissville-Hoyt area was the highest in the memories of the oldest residents. The water level at Oromocto was the highest in 37 years.

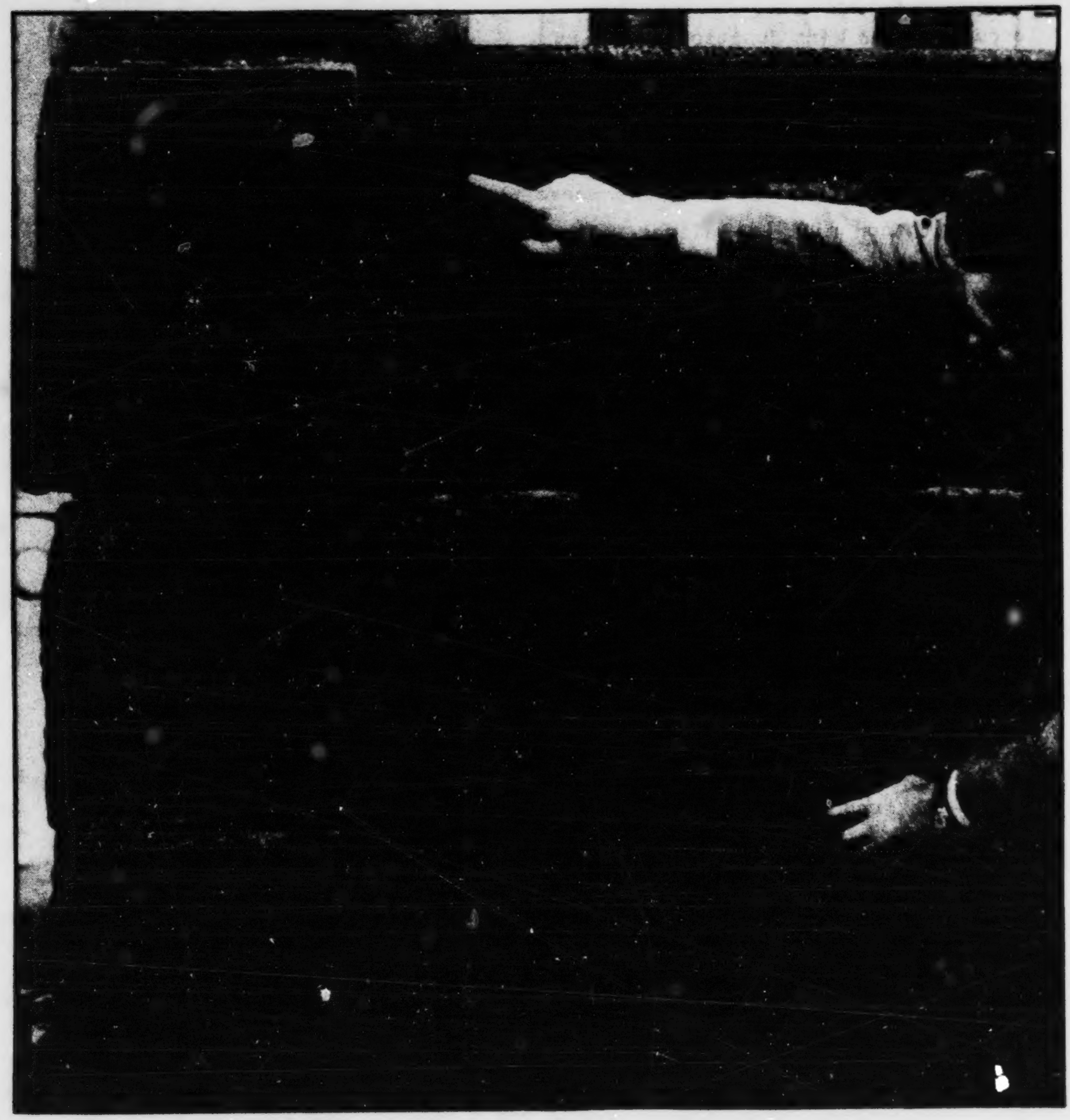
Flood conditions on the North Shore were reported to be very bad. The freshet on the Restigouche was said to resemble the freshet of the spring of 1934.

In Newcastle, the water was reported to be about two feet deep at the intersection of Henry and Castle Streets.

At Elmsville, Charlotte County, this was the worst freshet since 1923. At Milltown, the highwater did not reach the height of 1923; 1923 recorded level was 130.5 feet, and in 1936, the recorded level was 124.5 feet.

Damages: The C.N.R. and C.P.R. service was paralyzed in the central portion of the Province. Reports state that 28 provincial bridges were destroyed/damaged (Figure 15). The heaviest losses were experienced in Sunbury, Carleton, Charlotte and Albert Counties. Other counties in which bridges were lost or damaged were York, Kings, Queens and Victoria Counties.

Photograph 17



Comparison of 1936 Highwater Mark with that of 1887, Normal School, Fredericton

Photo Credit: N.B. Provincial Archives

Heavy damage to private property and losses to livestock occurred at Hoyt and Maugerville.

The C.N.R. bridge at Fredericton was valued at 1.5 million dollars. A New Brunswick Department of Public Works report stated that the flood caused expenditures of "over $100,000 on bridges and $50,000 on ordinary roads as well as greatly increased expenditures on Legislative Buildings and offices and the Normal School". Newspapers carried reports of two million dollar losses in downtown Fredericton.

Damages were stated to be high in the Digdeguash and Magaguadavic River Basins as well as in the Restigouche area.

Flood of 1937

Flood damage occurred in Presque Isle and Limestone, Maine. (Source unknown.)

Flood of November 15 - 18, 1937

The third freshet of the autumn threatened the Saint John River Valley. Showers were frequent through the past week. The river rose about three feet at Fredericton with a total rainfall of 1.2 inches. Logging operations were held up in some localities.

Flood of November 20, 1937

Cause: High tides and rain for the past week.

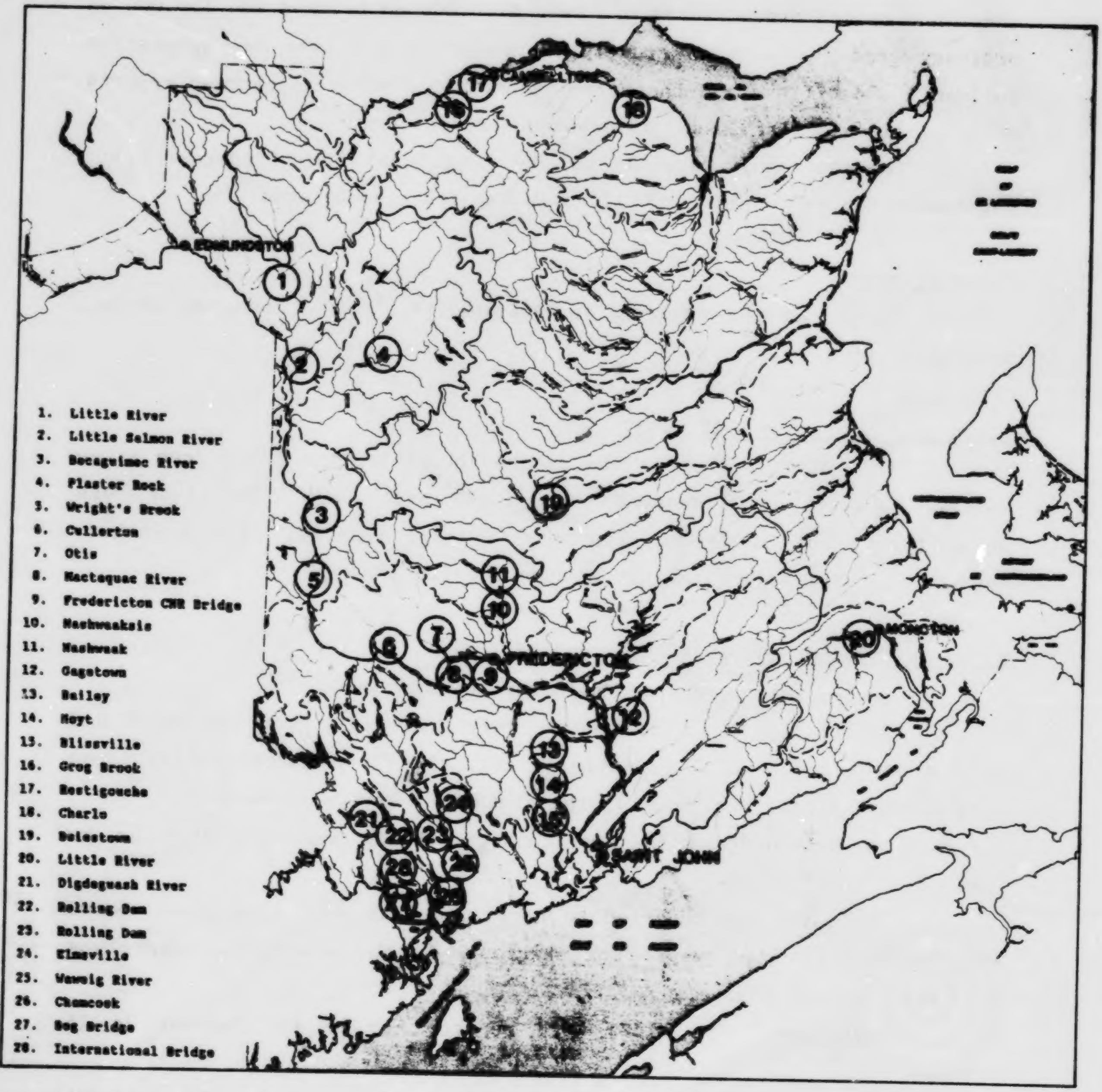
Description: In Newcastle, many basements were inundated and had to be pumped out. On Castle Street, the flood waters extinguished many furnace fires, resulting in the closure of several stores.

In Nelson-Miramichi, agricultural lands were reported to be flooded.

The river was reported to be filled with wood from broken booms and lumber which was swept from wharves. In the aftermath, debris was scattered on both shores.

Magnitude: The tides were reported to be the highest in 25 years.

Damages: No estimates of damages were presented. The greatest losses were reported to be to the mills in the area.



CAMPBELLTON
EDMUNDSTON
FREDERICTON
MONCTON
SAINT JOHN
1. Little River
2. Little Salmon River
3. Becaguimec River
4. Plaster Rock
5. Wright's Brook
6. Cullerton
7. Otis
8. Mactaquac River
9. Fredericton CNR Bridge
10. Nashwaaksis
11. Nashwaak
12. Gagetown
13. Bailey
14. Hoyt
15. Blissville
16. Grog Brook
17. Restigouche
18. Charlo
19. Boiestown
20. Little River
21. Digdeguash River
22. Rolling Dam
23. Rolling Dam
24. Elmsville
25. Waweig River
26. Chamcook
27. Bog Bridge
28. International Bridge
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

FIGURE 15

BRIDGES DAMAGED/DESTROYED BY FLOODING OF MARCH, 1936

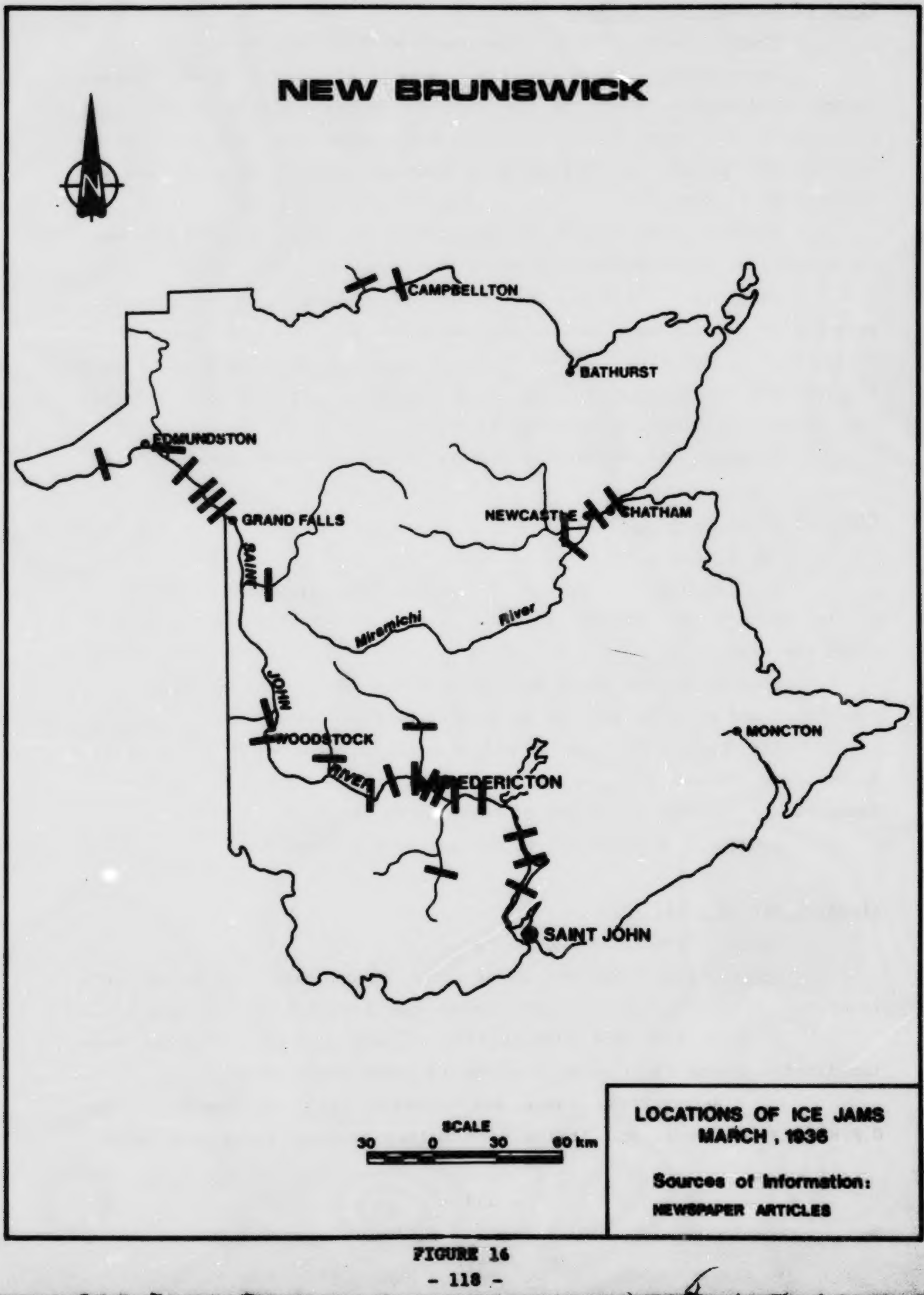

NEW BRUNSWICK
N
CAMPBELLTON
BATHURST
EDMUNDSTON
GRAND FALLS
NEWCASTLE
CHATHAM
SAINT
Miramichi
River
JOHN
WOODSTOCK
RIVER
FREDERICTON
MONCTON
SAINT JOHN
SCALE
30
0
30
60 km
LOCATIONS OF ICE JAMS
MARCH, 1936
Sources of Information:
NEWSPAPER ARTICLES

FIGURE 16

Flood of December 6 - 7, 1938

Cause: Rain and mild temperatures with melting snow.

Description: Turbulent flood waters of Ward's Creek, Sussex, caused considerable damage to the concrete bridge on Main Street, just upstream of the Agricultural School. The centre pier was reported to have dropped almost two feet below its normal level. The structure was constructed in 1929.

Reports from Sussex Corner indicated that no problems were encountered at the temporary bridge in that community.

Magnitude: During the month of November, total snowfall recorded at Sussex was 34 inches, while 36.3 inches was reported at Fredericton. The first eleven days of December were very mild with temperatures in the high 40's and 50's Farenheit. A 0.85 inch rainfall was reported at Sussex on December 6.

Damages: No estimates of damage to the structure were presented.

Flood of April 29 - 30, 1939

Cause: Ice Jam.

Description: An ice jam on the Southwest Miramichi at the mouth of the Renous River resulted in inundation of Route #8 for a distance of about one mile.

Several houses along the flood plain of the Renous River were threatened and at least one was surrounded by flood waters.

Magnitude: The ice jam which began to occur early on April 29, broke under its own pressure on the evening of the 30th. The section of Route #8 was flooded to a depth of between six and eight feet.

Damages: No estimates of damages were presented.

Flood of May 10 - 14, 1939

Cause: General spring freshet.

Description: In the Saint John River Basin, highways were inundated, trains halted and mills ceased operation due to high water.

At Fort Kent and Frenchville, streets in the low areas were inundated and some families were forced to leave their homes.

At Plaster Rock, water was reported over the tracks in the C.P.R. station yard, and trains were halted between there and Perth.

Some farmers at Andover were forced to move their livestock to higher ground.

The main highway between Hartland and Florenceville was inundated at Buckwheat Bridge. In Hartland, several cellars were flooded and one family was forced to evacuate their home.

Several low sections of highway near Fredericton were under water. The highways at Mouth of Keswick, Maugerville-Sheffield area and to Lakeville Corner were flooded.

Backwater on the Nashwaaksis Stream caused suspension of operations at the Devon Lumber Company. The Planing Mill, at Victoria Mills, was closed due to the high water conditions. At Oromocto, the River Valley Lumber Company's mill suspended operations.

In Fredericton, Campbell Street was inundated behind the Normal School, and the basements of two garages were flooded.

The C.N.R. Subway at the end of University Avenue was flooded due to back up of the storm sewer. A few inches of water was over the road at the White Bridge, Victoria Mills.

In Norton, a portion of Main Street was under water and several buildings were inundated, including Billy Forgraves Shoe Store and the Provincial Bank of Canada.

In the Restigouche River Basin, a bridge and portions of the highway were under water in the Flatlands District. Several houses in the area were flooded.

At Juniper, in the headwaters of the Southwest Miramichi, the boiler room of the Flemming and Gibson Ltd. plant was flooded. The plant was forced to cease operations for a period of time.

Magnitude: The Saint John River at Fort Kent reached the highest level since 1923. At the Woodstock, the river reached the highest level since the flood years of 1923 and 1936.

Damages: No estimates of damage were reported in the newspapers. Very little damage was said to have occurred in Sunbury County.

Flood of April 15 - 20, 1940

Cause: Rain, warm weather and ice jams.

Description: A two mile ice jam on the Aroostook River caused flooding in a portion of the Village of Masardis, Maine. About 15 families were evacuated from their homes by boat. Widespread inundation of farmland was caused by the Aroostook and its tributary, the St. Croix Stream. Another ice jam was reported to have occurred at Caribou, Maine. The Bangor and Aroostook Railway trackage was flooded between Presque Isle and Caribou. Flooding occurred at Fort Fairfield, Maine. At Four Falls, N. B., a bridge was threatened by the freshet.

The David Currie Bridge on the Tobique Valley Road, Victoria County, was damaged.

On the Centerville Sub-Division of the C.N.R., water was over the tracks in several places between Fredericton and Long's Creek and the road bed was damaged slightly. An ice jam occurred at McKinley Ferry and extended downstream to Hartt Island. The jam caused water to back up over the flats and highways at the Mouth of Keswick and along the road to Mactaquac. The highway bridges at the Mouth of Keswick and at the mouth of the Mactaquac River were floated off their abutments.

An ice jam occurred on the Nashwaak River at Penniac. In the Fredericton area, minor damage was caused by the freshet. An ice jam formed above the Experimental Station, and a few telephone poles were smashed by ice. At the foot of Westmorland Street, some boathouses were damaged by ice as well as the Capital Garage on Campbell Street. Campbell Street was under water between Phoenix Square and Regent Street except for the approach to the highway bridge. Warehouses between Phoenix Square and Carleton Street sustained minor damage. The intersection of Carleton and Brunswick Streets was flooded to a depth of two feet. The C.N.R. subway was flooded as well as the Green at various points and Officer's Square. The main highway was flooded at Glasier's, and the interval at Lower St. Mary's was inundated. An ice jam at Oromocto Island caused flooding at Upper Maugerville.

In the Miramichi River Basin, a heavy ice jam occurred two miles below Renous. Highway No. 8 was impassable, with four feet of water over the highway at the Renous underpass.

In the St. Croix River Basin, tracks were damaged in Washington County, Maine, halting rail traffic to Calais, Maine. Railway washouts occurred between St. Stephen and McAdam, at Moore's Mill and Watt Junction.

Magnitude: At Fort Fairfield, Maine, the flood was the worst since 1923. At Elmcroft in the Magaguadavic River Basin, the ice was said to have gone out at "a high pitch".

Damages: The damages were said to be slight in New Brunswick and no estimates were given. On the Magaguadavic River, booms broke and pulpwood was swept over the falls at St. George.

Flood of September 17 - 20, 1940

Cause: Severe gale in eastern New Brunswick accompanied by heavy precipitation.

Description: Near Bathurst, the high tides undermined several cottages at Younghall Beach. The storm caused heavy losses along the Miramichi because of the high tides and wind.

In Newcastle, the downtown area was inundated to the town square above Castle Street, resulting in losses to merchants and residents. At the peak of the gale, trees were uprooted, small buildings on the waterfront were carried away, and lumber was floated off the wharves. Firemen were called to evacuate one family at the corner of Mitchell and Henry Streets. Rowboats were visible on Castle Street as far as Atlantic Wholesalers. The Strawberry Marsh was reported to be flooded, but floodwaters did not affect the only home in the area.

At Chatham, the waterfront areas were flooded almost as far as Water Street. The C.N.R. line was inundated and communication with outside points was disrupted as telephone and electrical wires were downed.

The shore road to Loggieville was flooded along its full length. The boat landing to Middle Island was inundated to a depth of several feet.

The wharves at Burnt Church and Oak Point were damaged and several boats along the Escuminac shore were lost.

At Buctouche, a highway bridge was carried out and at least one home was inundated to the first floor. At Cocagne, the main highway was damaged by flood waters. Some basement flooding occurred in the Moncton area.

At Upper Capé and Baie Verte, up to 25 feet of shoreline was eroded, and several cottages were damaged. Dykes in the area were also breached.

The high tides, lashed by winds, severed roads and railways in several other coastal areas. Power lines were down between Saint John and Moncton, Musquash and other centres.

Magnitude: The storm was considered to be the worst of this type in many years.

At Moncton, almost five inches of rain fell.

In the Newcastle-Chatham area, the storm was described as being "unequalled since the Saxby Gale of 1869". A total of 2.55 inches of rain and winds as high as 80 mph were recorded at Chatham. The easterly gale was said "to have caused the tide to be 10 feet above normal".

A Capt. McLeod stated, "In 35 years experience, I had never seen such waves as swept along the Miramichi that night."

At Newcastle, in the vicinity of the North Shore Leader office and the Eastern Hay and Seed Company, the water was about four feet deep.

At Chatham, the water was reported to be two feet above the railway tracks at the Ferry Street Crossing.

Damages: In the Miramichi area, damages were estimated as being well into "hundreds of thousands of dollars". Most of the losses were confined to basements on Castle and Mitchell Streets in Newcastle. At the North Shore Leader office on Castle Street, one and a half tons of newsprint were lost along with forty storm windows. Along the Chatham Waterfront, the railway tracks in some places were reported to have shifted up to 15 feet.

The damage to power lines was reported to be the heaviest in the history of the Commission since operation began in 1922.

At Cape Bald, 50 lobster boats were reported to have been sunk, and lobster dealers in the area lost at least $1,500 worth of lobster from their pounds.

Flood of January 2, 1942

Cause: Heavy rain, mild temperatures and possibly melting snow.

Description: In the Sussex area, the rivers were described as "rising at an alarming rate". The flood waters of Trout Creek were said to have swept out a large section of the footbridge spanning the creek between the Military Camp and O'Connell Park.

Water from Ward's Creek reached the rear of the grandstand and spilled over onto the soccer grounds and the flats at the rear of the

Trinity Church property. Debris was reported to have been floated well up Main Street.

Magnitude: No information on the magnitude was presented.

Damages: No information on the damages were presented.

Flood of May 6 - 8, 1942

Cause: Mild weather and rainfall, general spring freshet.

Description: In Restigouche County, numerous brooks along the I.N.R. Branch were running at a heavy freshet level. Officials did not anticipate any flood damage.

In the Saint John River Basin, the freshet level was not exceptionally high. A few cellars in Fredericton were flooded at the intersection of Carleton and Brunswick Streets. The C.N.R.subway was flooded to some depth and water was over the pavement at the White Bridge, mouth of the Wilsey Road. The highway at Carman Creek, Lower St. Mary's was flooded, halting all traffic. Flooding occurred in the Maugerville-Sheffield area as well as Gagetown. Some people moved their possessions to higher ground on the south side of the river.

Magnitude and Damages: No description of magnitude or estimates of damage were reported in the newspapers that were reviewed.

Flood of December 2 - 3, 1942

Cause: Torrential rain, winds and melting snow.

Description: At Sussex, the flood waters of Trout Creek were reported to have "played havoc" with the embankments of the river adjacent to the Maple Avenue railway and highway bridges. The worst washouts occurred at the eastern end of the bridges. A considerable amount of fill was washed away from one of the stone piers of the railway bridge, and telegraph poles between the bridges were leaning. The waters of Ward's Creek were also very high and approached houses and buildings in the area of the bridge on Main Street. O'Connell Park was also inundated.

Magnitude: No information was presented.

Damages: No estimates of damage were given in the newspaper accounts.

Flood of February 11 - 12, 1943

Cause: Rain, high winds and probably melting snow. Possible debris jams.

Description: At Sussex, the storm caused the waters of Trout Creek to swell to abnormal heights. The flood waters carried with it logs, trees and other debris which resulted in damage to a water main crossing the river. The damaged water main was reported to be the lower one that feeds the Maple Avenue district and the military camp.

Magnitude: No information was presented.

Damages: No estimates of the damage were presented. However, it was noted that "considerable water was lost from the reservoir".

Flood of April 4 - 5, 1945

Lumber was swept away by the freshet in the Upper Saint John River Basin. In the Restigouche River Basin, the Restigouche Hotel at Matapedia had two feet of water over the basement floor. Several other buildings in the area were also affected. Numerous washouts were reported in the vicinity of Matapedia.

Flood of May 2 - 4, 1946

Heavy freshet along the Restigouche River and its tributaries. No damage had occurred along the river banks and there was still a considerable amount of snow remaining in the woods.

Flood of February 2 - 3, 1947

Cause: Rain, high winds, melting snow and ice jams.

Description: In the Sussex area, two periods of rain were reported with heavy accumulations of snow on the ground. One period of rain occurred on January 27 and 28, and the other on February 2.

Winds were estimated between 80 and 100 m.p.h. during the afternoon of February 2.

Parson's Brook was reported to have overflowed its banks, surrounding the Maples, the Long farm and the Murray home.

An ice jam on Trout Creek was reported to be responsible for considerable property damage in the Sussex Corner area.

In Sussex, work crews were kept busy clearing ditches and catch basins. Numerous complaints were received concerning flooded basements.

Ward's Creek overflowed, causing problems in the Magnolia Avenue and Malone Street areas. Malone Meadows and O'Connell Park were also reported to be inundated.

Magnitude: No information was presented.

Damages: No estimates of damage were presented.

Flood of February 5 - 6, 1947

Cause: Rain, mild temperatures and ice jams.

Description: Large sections of Kings County were inundated, several thousand feet of lumber were swept away and two lives were lost by drowning in Albert County.

At Sussex, Ward's Creek overflowed its banks, inundating Main Street from the Agricultural School to the Kings County Garage with about one foot of water. The water was reported to be about two feet deep in front of the Sussex Cheese and Butter Company Ltd., but no serious damage resulted. O'Connell Park was also inundated. At least one home on Maple Avenue was inundated to a depth of about two feet.

At Norton, two ice jams brought flood water into several houses and stores near the river. One jam was located at the highway bridge, while the other formed about two miles downstream of the community. The lower jam was reported to have broken under the pressure before the situation became too serious.

In other sections of Kings County, wooden bridges were damaged and sections of highways were washed out.

Magnitude: No information was presented except that this was the second flood within five days at Sussex. One resident also stated that "it had been at least six years since there had been a flood of like proportions".

Damages: Two children were drowned in Sheffar Brook, near Elgin, Albert County. They were swept away by the overflow on the road as they proceeded home from school.

At Sussex, between 15,000 and 20,000 feet of sawn lumber, owned by the Dutch Valley Lumber Company, was swept away. However, all was recovered except for about 4,000 feet.

At Norton, the ice jam were reported to have caused flooding of some homes and stores.

Flood of April 7 - 8, 1947

Heavy rain at Campbellton for about two days did much to lower the level of snow in the district. Water was reported to be running freely on local streets and there were a number of cases of basement flooding.

Flood of April 30 - May 10, 1947

Cause: Heavy rains, mild temperatures and snowmelt.

Description: Due to the heavy runoff, the main stem of the Saint John River overflowed onto the interval lands at several points.

At Fort Kent, Maine, approximately 100 people were evacuated from their homes.

A steel highway bridge at Powers Creek, four miles upstream of Grand Falls was washed out on Highway #2. Railway washouts were reported above Grand Falls. Highway #2 was also washed out at Muniac between Florenceville and Andover. Near Bristol, a C.P.R. freight train was wrecked when the roadbed caved in as a result of undermining by the Saint John River. At Buckwheat Bridge, three miles south of Florenceville, about 18 inches of water was reported to be over the highway. Several other sections of Highway #2 were inundated.

At Hartland, a few homes were surrounded by water and in the business section, water lapped the rear of the blocks on the west side of Main Street.

At Woodstock, the Meduxnekeag River overflowed its banks, inundating the surrounding interval land. The upper end of River Street was flooded. Cellars of houses on the interval were full of water and in some cases the freshet had invaded houses. The front access to houses on Bridge Street was cut off by water. The approach road to Island Park was inundated. At Grafton, the main road to Southampton was submerged at the mouth of Wright's Brook.

The islands above Fredericton were completely submerged. In the City, water was over a portion of Campbell Street and the Capital Garage basement was flooded. Residents in the Fredericton area near the river had flooded cellars. The C.N.R. subway was flooded to a depth of several inches as well as the highway at the end of Wilsey Road, Victoria Mills. Water was over the road at Carman Creek, Lower St. Mary's, halting traffic to Upper Maugerville.

In the Maugerville-Sheffield and Jemseg areas, the low lying lands and highways were inundated halting traffic. The highway was inundated at Hampstead.

At Indiantown, water cut off one residence and the family had to be evacuated. Other residents were menaced by flood waters. The Nerepis River had overflowed its banks.

In the Restigouche River Basin, all the rivers and streams were on the rampage and much pulpwood was swept from the banks. The flood waters of Walker Brook damaged a bridge on the Val d'Amour highway. Farmland and highways were inundated in many places.

Magnitude: At Fredericton, the river reached an elevation of 23.6 feet (20.9 feet above summer level). Peak (daily mean) discharge at Pokiok was 277,000 cfs. The stage was reported to be the highest since 1923 at Grand Falls, Hartland and Woodstock.

The freshet on Walker Brook, Restigouche County, was the highest the old timers in the district could recall.

Damages: Two men were killed in the train wreck near Bristol as a result of the track being undermined by the Saint John River.

In Restigouche County, an estimated 20,000 cords of pulpwood was lost in one boom break. No ice jams were associated with the freshet on the Restigouche River and its tributaries.

Flood of July 13, 1947

Cause: A severe electrical storm accompanied by torrential rains.

Description: Many parts of Kings County were affected by the severe summer storm resulting in damaged buildings and flooded roads.

Highway #9, from Sussex to Fredericton was inundated at several locations by the torrential rain and many gravel roads were washed out. Roads were affected, in the vicinity of Waterford.

At Sussex, about one-half of the dam at the swimming pool near the Boy Scout Camp was washed away.

Magnitude: No information was presented.

Damages: No estimates of damage were presented.

Flood of March 23 - 24, 1949

Cause: Mild weather resulting in melting snow and ice.

Description: In Kings County, many roads suffered heavy damage as melting snow resulted in many minor washouts.

At Sussex, Kirk Brook overflowed its banks and flooded low lying fields. The Royal Bank of Canada building was barricaded with gravel to prevent water from Ward's Creek from entering the cellar.

Trout Creek overflowed its banks near Sussex Corner, sending water up to the main highway.

Temperatures dropped late in the day, and by midnight on March 24, all brooks and streams in the Sussex area were back within their banks except for a few exceptionally low spots.

Magnitude: No information was presented.

Damages: No estimates or detailed description of the damages were presented.

Flood of January, 1950

An ice jam in the Nepisiguit River resulted in flooding of the highway near "The Falls", blocking traffic.

Ice jams were also reported to have occurred on the Restigouche River and its tributaries.

Flood of April 8 - 9, 1950

Cause: High tide accompanied by storm force winds.

Description: The Miramichi was reported to have swelled to four feet beyond the end of the A. & R. Loggie Company wharf at Loggieville. The mill floor was inundated, forcing closure of the mill.

Magnitude: The spring tides were reported to be the highest in the memories of the older residents.

Damages: No estimates of damage were presented.

Flood of April 20 - 24, 1950

Cause: Heavy rains coinciding with spring breakup while the frost was still in the ground. Some ice jams occurred.

Description: Heavy rain fell during the period of April 20 to April 21. Four inches fell over the Oromocto River Basin and two inches at Fredericton and Saint John. The rain was caused by a low pressure area which moved in from the Great Lakes.

Heavy ice runs occurred, with ice cakes reported to be two feet thick. Ice jams occurred on the Keswick River, in the McKinley Flats and at Long's Creek.

Considerable low lying land was flooded along the Keswick, Oromocto and Nerepis Rivers.

Railway traffic was at a standstill in the lower part of the Saint John River Basin with washouts reported at Zealand, Taymouth, Marysville, Penniac, Durham, Welsford and Fredericton Junction.

Several highway bridges were washed out including two across the Tobique River at Plaster Rock and Arthurette, one across the Oromocto River at Hoyt, two in Marysville and one on Back Creek at Blissville. Bridges were damaged at Florenceville and Bailey.

Telephone and power services were disrupted in the Plaster Rock area as well as at the community of Hoyt.

A few houses were flooded along the Oromocto River.

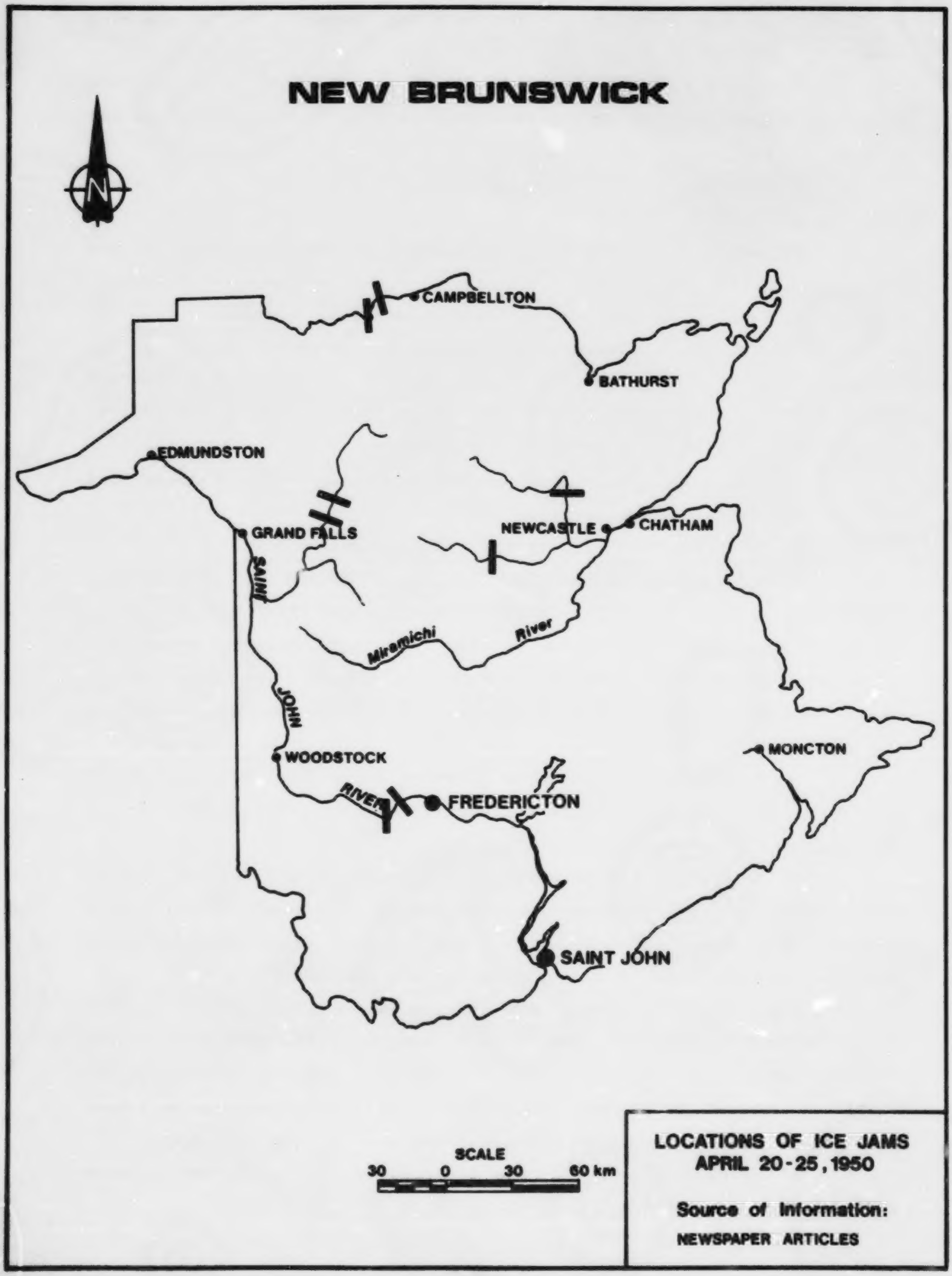
In the Restigouche River Basin, the flood waters crippled rail traffic and quantities of pulpwood were lost on the river and its tributaries. Many communities were severely hit and property damage was extensive along the Restigouche and Matapedia Rivers. Ice jams occurred at the Matapedia Bridge and on the main river between Broadlands, Quebec, and Tide Head, New Brunswick.

From Runnymede to Matapedia, several barns were destroyed on the New Brunswick side. At Babcock's Crossing, several families were forced to evacuate their homes.

At Matapedia, the basement of the Restigouche Hotel and several other buildings were flooded. A garage near the hotel was inundated causing some damage to cars and a truck. Adam's Store reported water over the main floor and stock was moved to a higher level.

The C.N.R.'s Gaspé Sub-Division was under water between Matapedia and Sillarsville causing some damage to the road bed. Barns and hay were lost at Sillarsville, Quebec. Between Matapedia and Flatlands several barns were destroyed. The Lower Restigouche Salmon Club and others were extensively damaged and several homes inundated.

At Wyers Brook, ice damage occurred on the flats, and a house and barn were carried down river.


NEW BRUNSWICK
N
CAMPBELLTON
BATHURST
EDMUNDSTON
GRAND FALLS
NEWCASTLE
CHATHAM
SAINT
Miramichi
River
JOHN
WOODSTOCK
RIVER
FREDERICTON
MONCTON
SAINT JOHN
SCALE
30
0
30
60 km

LOCATIONS OF ICE JAMS
APRIL 20-25, 1950

Source of Information:
NEWSPAPER ARTICLES

FIGURE 17

In the Miramichi River Basin, residents of Lyttleton and Halcomb were isolated for several days. Electric power to the villages was disrupted when Summers Bridge at Lyttleton was destroyed. Sporting camps in the district were damaged by ice. The Chatham to Richibucto highway was reported to have been washed out in several sections. Boats, lumber and wharves were either damaged or lost on both banks of the river in the Newcastle area.

High tides and the spring freshet were reported to have blocked the Moncton to Amherst highway, four miles west of Dorchester.

The rail line between Musquash and Lepreau was inundated.

The C.P.R. was inundated near St. George and the pulp mill was forced to suspend their operations due to the high water. Homes were evacuated at Second Falls and Bonny River, as some of the houses were flooded to a depth of three feet. On Lake Utopia, summer cottages were inundated. The water reached the windows of some cottages.

A major washout occurred on the C.P.R. line between St. Andrew's and McAdam as a result of high flows on the Digdeguash River. A work train and a crew of 100 workmen were reported to be dispatched to affect repairs.

Flooding in the St. Croix River Basin was accompanied by high tides. The water behind the aboiteau was unable to run off. At Milltown, the International Bridge was damaged and considered unsafe for vehicular traffic. Several homes in Milltown, N.B. had to be evacuated. Considerable amounts of lumber and logs were lost.

Magnitude: At the Dominion Experimental Station, Fredericton, a rainfall of 3.11 inches was recorded. At Fredericton, the river reached an elevation of 22.1 feet (reported 20.8 feet above summer low). The Nashwaak River was reported to have reached its highest level in 27 years. On the Oromocto River, the flood was reported to be the highest in memory. The maximum daily mean discharge at Pokiok was 223,000 cfs.

A Flatlands resident suggested that this was the "worst breakup" along the Restigouche and Matapedia Rivers in over 50 years.

Damages: Bridges, rail lines and roads suffered the greatest damage. Newspaper reports assessed the damage at one million dollars or more in New Brunswick. Probably one-half of the overall damage was in the Saint John River Basin. Estimate to rebuild bridges that had been destroyed was in the order of $150,000.

In the Restigouche District, the C.N.R. had 300 to 400 men employed in repairing the rail lines.

Flood of November 28 - 30, 1950

Cause: Heavy rainfall in portions of New Brunswick and Quebec.

Description: In the Restigouche River Basin, most of the reported damages were to roads and the railways in the Quebec portion of the basin.

At Matapedia, many basements were flooded and large sections of roads were impassable. A 60 foot section of the C.N.R.'s Gaspé Division was washed out about one mile below Matapedia. A debris jam resulted in the loss of a temporary rail bridge at Bonaventure. Numerous other washouts and flooded sections of highways were reported.

Flood conditions were prevalent in the southern portion of the Province, especially Saint John, Kings and Charlotte Counties. At Sussex, slight damage was done to the highway bridge on Maple Avenue. Route #2, between Fredericton and Saint John, was plagued with some flood waters. The road surface at Sussex Corner was under a foot of water, and the foot bridge to the Boy Scout Camp was torn loose at one end. Flood conditions existed at Coldbrook between Saint John and Sussex. Two bridges were reported out at Kingston Corner, Kings County, when the dam broke at Bates Lake. A barn and at least two vehicles were lost along with 25 cords of hardwood and 5,000 feet of lumber at Kingston Corner.

The St. Croix River overflowed its banks disrupting rail service in the area. At Milltown, five homes on Water Street were inundated with up to two feet of water.

Magnitude: The 24 hour rainfall at Fredericton was 1.35 inches making a total of 8.08 inches for the month of November.

In Kings County, the event was reported to be "the worst fall flood for at least 12 years". Observers thought the peak might have exceeded that of December, 1938.

At the St. Croix Pulp and Paper Mill, Woodlands, a rainfall of 5.39 inches was recorded. The total flow at Grand Falls Dam, Woodlands, was reported to be in the order of 15,000 cfs.

In the Matapedia District, oldtimers described the fall floods as being "the worst ever experienced".

Damages: Losses at Kingston Corner were estimated at about $30,000.

The Fraser Company was reported to have lost 300 to 400 cords of pulpwood in the Restigouche area.

Flood of December 12 - 15, 1950

Cause: Tidal upheaval and heavy rains accompanied by high winds.

Description: In Fredericton, cellar flooding occurred. The basements of the Capital Garage and Armories were flooded to a depth of one foot. The Regent Street wharf was completely under water. Some minor washouts occurred on gravel roads throughout the City.

Tidal upheavals occurred along the Gaspé Coast. Roads and bridges were washed out. Those along Wyers Brook had been washed out three times in the past several weeks. Some cellars in the district were also flooded.

In Sackville, flooding was concentrated near the C.N.R. Station on Lorne Street. The dyke opposite the station had been broken in three places, and the aboiteaux were out. The pumping station on Lorne Street was described as "working day and night".

In the Lewisville area, some people were reported to have been left homeless, and haystacks were carried away.

East of Sackville, C.B.C. International transmitters were inundated to the level of the concrete abutments. However, the equipment was not affected.

The Sackville-Amherst highway was inundated at several locations.

Railway tracks on the Albert County Branch Line were flooded at every high tide with a significant loss of ballast.

In the St. Croix River Basin, homes were flooded and rail services were disrupted. Four families were forced to evacuate their homes in Milltown, N.B., as water crept over the main floor. The rail line to the cotton mill was inundated and the Milltown Lumber Company ceased operations when their buildings and yards became inundated. A rail washout occurred at Honeydale. The telephone company building was flooded disrupting service in the area.

At St. Stephen, business and residences suffered from flooded basements when storm sewers backed up, creating loss of stock.

Magnitude: At the Dominion Experimental Station, Fredericton, 1.64 inches of rain was recorded bringing the total December rainfall, to date, up to 4.57 inches. Since November, 12.94 inches of rain plus seven inches of snow for a total precipitation of 13.64 inches was recorded at the Experimental Station. A new fall record was set when the river reached 18 feet above low summer level at Fredericton.

At the St. Croix Pulp Mill, Woodlands, rainfall for the month of November was in the order of 12 inches, and already during the month of December, over six inches of rain had fallen. The flow at the Grand Falls Dam, Woodlands, was in the order of 19,000 or 20,000 cfs. This was the highest recorded since 1923 when the discharge was about 23,000 cfs.

Damages: Damages resulted in work and service stoppages in several areas. In Sackville, damage was centred at the C.N.R. Station. The cost of repairing the aboiteaux was estimated at $3,000. The Ganong Brothers plant, St. Stephen, lost about four tons of cardboard and two tons of book paper.

Flood of February 7 - 8, 1951

Cause: Mild temperatures, rain, melting snow and ice jams.

Description: Throughout Kings County, 24 hours of rapidly changing weather disrupted electrical service, flooded roads, homes and damaged buildings.

At Norton, highways were under water at some points, and the street leading into Norton was covered by more than one foot of water. Other streets in the community were also under water and several homes were surrounded, and in some instances had water on the ground floors. The flooding in Norton was reported to be the results of an ice jam located two miles downstream of the community.

In Sussex, Ward's Creek and Kirk Brook were higher than the other streams in the area. Flood waters from Ward's Creek flowed across O'Connell Park and re-entered the stream near the bridge on Highway #2. The streams were also reported to have flowed down Magnolia Avenue onto Main Street, thence by Harold T. Bell and Sons back to its original course.

Roads at Berwick, Plumweseep and several other points were reported to be under water but no serious damage resulted.

Magnitude: The flooded rivers were said "to be fed by the 12 inches of snow which had fallen the previous Sunday, and which disappeared completely under the combined attack of the rain and high temperatures".

Damages: No estimates of the damage were presented.

Flood of April 5 - 14, 1951

Cause: Rain, spring breakup resulting in some ice jams.

Description: In the Saint John River Basin, a serious ice jam occurred at Connors which backed up water for about 10 miles. Heavy erosion resulted in this area. In Connors, three homes were moved and roads were out. Some flooding of basements was reported at Fort Kent, Maine. At Baker Brook, Madawaska County, water approached the C.N.R. main line.

Ice jams were reported above Fredericton at Long's Creek and at Crock's Point. The jam at Crock's Point caused undermining of about 3,000 yards of C.N.R. track in the McKinley Flats area.

In the Restigouche River Basin, an ice jam occurred at the railway bridge across the main river below Matapedia. As a result of the ice jam, the C.N.R. line was under water. Many buildings and homes in Matapedia had flooded basements. Roads in the vicinity of Matapedia were inundated and the highway from Campbellton to Matapedia was closed to traffic for a period since it was under three feet of water. Washouts occurred along the C.N.R.'s Gaspé line.

The freshet on the Miramichi River resulted in traffic interruptions. An ice jam occurred near the Quarryville underpass and was responsible for inundating Route #8 at Quarryville.

Magnitude: No data on the magnitude was available.

Damages: The ice jam at Connors was said to have caused damage to a gravel pit in the order of $15,000. Losses also occurred to farm houses in this area.

The flood waters at Matapedia caused property damage in the order of $50,000. The damage to the C.N.R. lines was estimated to be about 50% of this figure.

Flood of January 24 - 25, 1952

Cause: Rain, mild temperatures and an ice jam.

Description: "Recent rains have raised the river (Kennebecasis) almost to flood levels several times", but this storm resulted in a heavy ice jam midway between Norton and Bloomfield. At Norton, water levels reached "dangerous" levels. Fields were flooded and about "a one foot" rise would have sent water over the main street in the vicinity of the Norton Superior School. Some basement flooding occurred in the community.

Magnitude: No information was presented.

Damages: No estimates or description of the damage were presented in the newspaper accounts.

Flood of May 13 - 14, 1952

The highway from McGowans Corner to Lakeville Corner was inundated by waters from Portobello Creek for a distance of between one to two miles. "The road will only become completely passable when the Saint John River recedes to 11 feet from its present height of 14.3 feet above average summer low."

Flood of February 7 - 8, 1953

Cause: Torrential rains, mild temperatures and ice jams.

Description: In Kings County, torrential rains caused rivers and brooks to overflow, but dropping temperatures followed by snow relieved some of the concern.

The district highway engineer said "water had flowed over the roads in several places". The Belleisle area, Highway #14 leading from Penobsquis to Alma and the Plumweseep Road were some of the areas affected. No serious washouts were reported.

In the Norton area, an ice jam on the Kennebecasis River (two miles west of Norton) backed up water to the danger point before breaking under its own pressure. Fences were broken and other minor damage was reported to be caused.

Many cellars throughout the County were flooded or taking in water.

In Westmorland County, hundreds of acres of marshland were flooded. The highway between Westcock and Frosty Hollow was inundated to a depth of three to four feet. Several cars and trucks were reported to have left the road, and motorists were forced to detour via the Fairfield Road between Sackville and Dorchester.

In Sackville, many basements were flooded except in the higher sections of town. The RO-KIN Playground and Memorial Park (corner of Bridge and Lorne Streets) were inundated and reported as "resembling a choppy lake". The pumping station on Lorne Street was flooded and several motors were put out of commission.

East of Sackville toward Amherst, the highway was inundated at several locations.

Magnitude: A rainfall of 2.70 inches was reported at Sussex, while at Sackville, a reported 3.60 inches of rain occurred in a 36 hour period.

The water level in the Kennebecasis River was estimated to be 20 feet above normal summer levels before the ice jam broke.

At Sackville, it was stated that "all drainage was taxed far beyond capacity."

Damages: No estimates of damage were presented.

Flood of February 8 -11, 1953

The highway from Moncton to Amherst was inundated with four to five feet of water in an area between Westcock and Frosty Hollow. All traffic was halted.

Flood of March 26 - April 3, 1953

Cause: Spring breakup caused by mild temperatures and heavy rains. Some ice jams occurred.

Description: Several major and minor washouts occurred throughout the Province, especially on secondary roads where culverts were too small to handle the excess flow. In Restigouche County, Routes #11 and #17 were flooded in several places making them impassable. Difficulties were experienced in Madawaska and Victoria Counties when several brooks overflowed numerous highways and branch roads. Route #2 was washed out at Bristol and Victoria Corner. Flood waters also inundated a one-quarter mile stretch of highway near Plaster Rock.

At Fredericton, an ice jam occurred at the Dominion Experimental Station. Several buildings along the waterfront had flooded basements and the ice caused some damage. A few cars had been caught in the rising waters.

In the Nashwaak River Valley, ice jams occurred above Stanley, near Durham Bridge, above Penniac Bridge and below Marysville. The railway bridge at Cross Creek Station was threatened. When the jam at Stanley broke, the sudden rise in water inundated roads; power and telephone lines were broken; houses flooded and barns were swept off their foundations. Two homes at Taymouth were isolated as well as two at Nashwaak Village. A similar situation occurred at Taymouth during the spring of 1950. At MacLean's Flats, the C.N.R. line was under water for a distance of about two miles. Work crews used dynamite in an attempt to relieve some of the pressure below the flooded section.

The flooding halted all rail service between Fredericton and Newcastle and McGivney to Edmundston because of washouts. A one mile section of rail bed was washed out near Doaktown (probably McNamee). The Porter Cove Bridge at Ludlow was carried out. The main highway bridge at Doaktown was submerged. Route #8 was impassable in the Renous-Quarryville area. Some small washouts occurred along Route #8 between Doaktown and Newcastle as well as another gravel road in Northumberland County. In Newcastle, many cellars were flooded. At Chatham, brooks and storm drains were unable to handle the overflow and many flooded basements occurred as a result.

In Albert County, Route #14 was reported as impassable from Mechanic Settlement to Fundy National Park.

The Magaguadavic River, Charlotte County, was reported to be in spring freshet. Sections of highway and rail lines along the river between St. George and Bonny River were inundated. Farmers were forced to move some cattle to higher ground. In St. George, the curling rink was surrounded by water. A section of Manor Road was inundated and some residences were isolated.

The Digdeguash River was reported to have overflowed its banks at Rolling Dam.

At Bocabec, a section of highway was inundated.

At St. Stephen, the Hamilton Flats were inundated and some basement flooding occurred.

Magnitude: The ice jam below Fredericton, at the Dominion Experimental Farm caused the river to reach a height of 20.6 feet before breaking.

In Chatham, flood waters on Wellington Street were reported to be approximately three feet deep.

Damages: No estimates of damage were given in the newspapers, however, many of the mills throughout the Miramichi, including Fraser's Mill at Newcastle, reported losses.

Flood of April 16 - 24, 1954

Cause: Heavy rains in southern New Brunswick.

Description: In the Nackawic River Valley, the Maple Ridge Road was washed out at a point about a mile from Millville.

At Upper Keswick and Zealand Station, considerable flood damage resulted to highways, C.P.R. lines, homes and barns.

In the Nashwaak River Valley, landslides caused minor damage to highways three miles north of Marysville at Penniac and at Durham Bridge. At Nashwaak Village, a farm was isolated by flood waters and the family as well as the livestock had to be evacuated.

At Fredericton, the river crept up over Campbell Street and the C.N.R. underpass was flooded to a depth of about one foot. The highway at the mouth of Wilsey Road was partly inundated.

At Lincoln, about 25 to 30 homes in a low lying section were completely surrounded by water.

In the Oromocto River Basin, several highways were inundated. The Oromocto Flats were submerged, but the highway remained passable. A section of highway from Geary to Blissville was submerged as well as a portion of Route #28 between Fredericton and Fredericton Junction. At Hoyt, some homes were surrounded by water and acres of farmland had been inundated.

In the Maugerville-Sheffield area, several homes and barns were surrounded by water. Route #9 was impassable to vehicular traffic because of the flooding. The highway from McGowan's Corner to Lakeville Corner was submerged.

In the Saint John area, sections of Rothesay Park were inundated. At Drury Cove, a portion of Allan Point was submerged and several homes were isolated. A swollen brook (Newman Brook) caused the collapse of a foundation on River Street forcing 10 persons from their homes.

The Magaguadavic River overflowed its banks, inundating low lying areas. At Second Falls, several families were forced to evacuate their homes because of flood waters. The curling rink at St. George was flooded. The water was reported to have reached the base of the first floor windows.

The St. Croix River overflowed its banks at Milltown, N. B. Several families were forced to evacuate their homes on Water Street which was partially inundated.

Magnitude: Approximately three inches of rain fell at Fredericton on April 17 and April 18. The stage at Fredericton reached an elevation of 23.0 feet (21.5 feet above normal summer low). The maximum daily mean discharge was 223,000 cfs at Pokiok.

At Drury Cove, the water level reached was said to be "the highest since 1945".

Damages: No estimates of damage were recorded in the newspapers.

Flood of September 11 - 13, 1954

Cause: Heavy rainfall associated with Hurricane Edna.

Description: Flood conditions existed at Presque Isle, Limestone and Fort Fairfield, Maine, in the United States portion of the Saint John River Basin.

In the New Brunswick portion of the basin, some damage occurred in Grand Falls area. A C.N.R. bridge across Powers Creek near Grand Falls was taken out and other C.N.R. washouts occurred at three points between Grand Falls and St. Leonard. Several highway washouts were reported near Grand Falls, including a bridge about two miles south of the town. The fish hatchery at Grand Falls sustained heavy damage when the hatchery dam buckled and some concrete ponds were destroyed.

In Woodstock, the Meduxnekeag River was on the rampage, flooding homes, business establishments and streets. A covered bridge at Weston, North Branch Meduxnekeag, was carried out, another span was damaged at Brigg's Mill when the dam broke. Two sawmills were swept away by the Meduxnekeag and many logs were lost. Some cattle were marooned and had to be rescued by boat and barge. Minor damage was sustained by business establishments on Main Street. River Street was completely inundated and many cellars were flooded in the community. One family was forced to move their belongings to the upper floor of their home.

A bridge across the Becaguimec River, on Highway #24 at Cloverdale, was carried away.

At Dumfries, on the Fredericton to Woodstock highway, the road and a section of the C.N.R. track was washed out.

In Fredericton, many cellars were reported to have been flooded.

In the Nashwaak River Valley, a highway washout occurred near Stanley at Cross Creek Station. There were several washouts along the C.N.R., halting all rail traffic between Fredericton and Newcastle. At Durham Bridge, a farm was marooned, crops were submerged and farm equipment was lost. The highway was inundated near Penniac.

At Saint John, in the east end, three families were evacuated when flood waters threatened their homes.

The storm caused considerable damage to railway and highway routes on the North Shore and Gaspé Coast. The rivers and brooks in this area rose rapidly. Along the Restigouche and its tributaries, many canoes and motors were swept away. In the Upsalquitch River Basin, at least nine were lost but several had been recovered. The highways to Upsalquitch and Wyer's Brook were blocked by landslides. Washouts occurred at several points along the I.N.R. At Val d'Amour, one house was overturned by a combination of flowing water and wind. Extensive damage occurred to the highways in this area and telephone poles were completely washed out. In Campbellton, flooded basements were quite frequent in both residential and business districts. Cairn's Grocery and F.W. Woolworth were among the firms affected. A home near the entrance to the race track was moved off its foundation by the flood waters of Walker Brook. At N.B.I.P. Mill, Dalhousie, 10,000 cords of pulpwood broke loose and drifted out into the Bay. At least six farms in the Charlo area were flooded. A highway bridge between Selwood Corner and Eel River Crossing was badly damaged.

In the Miramichi River Basin, the bridge at Red Bank was destroyed.

In the St. Croix River Basin, the Ferry Point Bridge was closed to vehicular traffic for a short period of time. The Ganong Brothers lost packaging materials when water backed up into the basement of their plant through overtaxed storm sewers.

Magnitude: At Presque Isle, Maine, it was reported to be "the largest storm in recent history". At the Tobique Power Plant, a rainfall of four inches was recorded. The flood on the Meduxnekeag and Nashwaak Rivers was said to be the highest since 1923. At Fredericton, a rainfall of 3.8 inches was recorded. A 4.7 inch rainfall was reported in the Campbellton area. The rivers in Restigouche County were reported to have "reached spring levels".

Damages: At the Grand Falls fish hatchery, approximately 300,000 fish were lost when the flood passed. Resulting losses were $291,000 in Presque Isle, and $75,600 at Limestone, Maine. One person was drowned at Fort Fairfield, Maine.

In Restigouche County, estimates of highway damage were in the order of $100,000.

The losses of Ganong Brothers, St. Stephen, were estimated to be about $5,000.

Flood of January 6 - 16, 1956

A thaw began on January 6 and continued through to January 16. Ice jams occurred at Nashwaak Village and at Taymouth. No damage resulted. During the period, 4.66 inches of rain was recorded at the Fredericton Airport.

In the Village of Port Elgin, several basements were flooded.

Flood of January 22 - 23, 1957

Cause: Mild temperatures, rain and melting snow.

Description: In Kings County, the January thaw sent rivers, streams and brooks over their banks, but not sufficiently high enough to cause serious damage.

At Sussex, numerous blocked catch basins resulted in some flooding. The eastern end of Broad Street was reported to be almost entirely under water.

A danger point in the Kennebecasis River, two miles west of Norton, was reported "to be free of ice jams".

Magnitude: No information was presented except that "almost all of the more than one foot of snow present had disappeared from the open spaces".

Damages: No serious damage was reported.

Flood of July 11, 1957

A heavy rain resulted in flooded basements in the area of Minto and Aberdeen Streets of Campbellton.

Flood of January 18 - 20, 1958

A January thaw created an ice jam on Newcastle Creek just upstream of North Minto. One family was forced to flee their home when threatened by rising flood waters. Officials used dynamite in an attempt to break the jam.

Flood of April 24 - 30, 1958

Cause: Melting snow and heavy rains.

Description: Flood conditions prevailed over most of the Saint John, Restigouche and Miramichi River Basins. Most transportation routes were disrupted because of submerged highways and railways.

At Fort Kent, Maine, about one-quarter of Main Street was flooded, and approximately 100 families were affected by the flooding. Reports stated that six homes may have been lifted off their foundation.

The C.P.R. was submerged at three points between Perth and Plaster Rock to a depth of 12 to 18 inches. Basement flooding occurred at Perth-Andover. A bridge across the Becaguimec River, at Coverdale east of Hartland, was submerged. At Woodstock, the approach to Island Park and the Park itself were submerged, and buildings were moved from their foundations. People were evacuated from their homes in Woodstock and Edmundston. The Grafton area near Woodstock was also severely affected.

Route #21 was inundated at Keswick Flats, halting traffic. At the peak, the City of Fredericton was almost cut off from the other parts of the Province. Basement flooding was reported at both Fredericton and Lower Lincoln. People were evacuated from their homes in Fredericton, Upper Lincoln and Barkers Point. In the Nashwaak Valley, the C.N.R. tracks were flooded just south of Ross Siding.

Route #9, through Maugerville-Sheffield area was closed to traffic, while Route #2 at Oromocto Flats was only navigable by large vehicles. In the Maugerville-Sheffield areas, the lower floors of homes were flooded, cattle were moved by boat to higher land and considerable potato and turnip losses from root cellars were reported.

Along the Oromocto River, large areas were flooded. Route #28 was inundated at Blissfield and a washout resulted. Other sections were inundated at Tracy and Clarendon.

Along the lower reaches of the Saint John River, several summer cottages were completely surrounded by water. A highway washout occurred at Red Bank near Chipman. Large tracts of land along the Nerepis and the Kennebecasis River near Sussex and Hampton were inundated. The highway at the South Bay Bridge was submerged.

Ferry service at Burton, Upper Gagetown, Hampstead and Evandale was disrupted during the flooding.

Some flooding was reported to have occurred along the Restigouche River.

In the Miramichi River Basin, the C.N.R. line was washed out at McNamee, cancelling trains between Newcastle and Fredericton.

Magnitude: The level at Fredericton reached 24.95 feet on April 25. Peak (daily mean) discharge at Pokiok was 277,000 cfs. Discharge at Beechwood was reported to be 234,000 cfs as compared to the previous record of 232,000 cfs set in 1923.

At Fort Kent, Maine, the Saint John River was reported to be 20 feet above normal, and only four feet below the bridge deck.

Damages: Newspaper reports estimated the damage along the Trans Canada to be $200,000 and stated that another $50,000 would be required to repair highway bridges and culverts elsewhere in the Saint John River Basin. In Fort Kent, Maine, the flood caused damages of $140,000. A sixteen year old boy was drowned in the swollen Quisibis River near Green River.

Flood of September, 1958

High tides resulted in some inundation of marshland in Westmorland County. East of Sackville, at Coles Marsh, the C.N.R. main line was flooded resulting in loss of ballast. Nothing was reported from the Town of Sackville itself.

Flood of December 1, 1958

A heavy rain followed by a light snow fall caused many cellars at Milltown, N. B., to be flooded. Damages to furnaces and oil burners resulted.

Flood of April 23, 1959

An ice jam occurred on the Matapedia River at St. Alexis Station, as well as another large jam below the Matapedia Bridge. The Quebec Department of Highways attempted to open the channel using dynamite.

Flood of June 26, 1959

Cause: Hurricane type storm, high tides and heavy rainfall.

Description: At Escuminac, many boats were wrecked, leaving many fishermen dead before they could reach safety.

At Newcastle, flood waters were reported over the wharves. Irving Oil Ltd., adjacent to Morrissey Bridge, was flooded, but no damage resulted.

Ships docked at Acadia, Burchill's and Anderson's were reported as "appearing to be drifting in the river as all wharves were covered".

Magnitude: Flood waters were reported to be about two feet deep on the Newcastle waterfront.

Damages: One-third of the Miramichi area drift net fleet was reported to have been destroyed.

Flood of November, 1959

High tides resulted in the inundation of the marshlands along the Aulac and Tantramar Rivers. No damage or estimates of areal extent were presented. No flooding was reported in the Town of Sackville.

Flood of December 3, 1959

Cause: Heavy rains during the past week resulted in flooding along the Magaguadavic and St. Croix Rivers.

Description: Along the Magaguadavic River, fields were inundated as water was reported to be over Manor Road and the highway to Bonny River in several places. Residents had to evacuate their homes because of flooded basements and damaged furnaces.

At Milltown, N. B., water covered the rail line above the upper bridge on Water Street. Many homes in low lying areas were surrounded and flooded cellars resulted.

Magnitude: The level of the St. Croix River rose within inches of the upper bridge and many motorists used other spans to cross back and forth to Maine.

Damages: No estimates of damage were presented.

Flood of May 17 - 18, 1960

Cause: Heavy rain.

Description: In the Saint John River Basin, high water halted ferry service at Gagetown and Burton. In Fredericton, cars at the rear of the Capital Garage, Campbell Street, were partly submerged. Route #9 was under water at Jemseg and the highway between McGowan's Corner and Lakeville Corner was submerged. Flood conditions existed throughout Maugerville-Sheffield area but no reports of damage were presented. Cottages in the French Lake area were surrounded by water.

In the Miramichi River Basin, the river was reported to be at freshet height but roads and railway lines were not blocked.

Magnitude: Levels on the Saint John River were higher during the second half of May than during the spring freshet of this year. Peak stage at Fredericton was 22.0 feet while the maximum daily mean discharge at Pokiok reached 187,000 cfs.

Damages: No estimates of damage were reported in the newspapers.

Flood of May 8 - 12, 1961

Cause: Snowmelt. An exceptional heavy winter snowfall persisted well into the normal runoff period. In the second week of May, a spell of warm weather occurred with mean temperatures rising above 60° F.

Description: The most serious flooding conditions existed in the upper part of the Saint John River Basin, the Nashwaak Valley and Miramichi River Basin where snow accumulations were the heaviest. In the Saint John River Basin, proceeding downstream, the relative magnitude of the flood gradually decreased as snow accumulation in the lower part of the basin was closer to normal.

At Fort Kent, Maine, damages were experienced by 35 homes, 65 commercial establishments and four public buildings. Water was reported as being about two to three feet deep on Main Street. Families had been evacuated.

At Edmundston, No. 30 Ferry Street was completely surrounded by water and the occupants were forced to vacate their house for the fourth time since April 1958.

Two thousand cords of pulpwood escaped from a log boom at Upper Kent and were spread over the low lying areas below Fredericton. Route #2 was closed due to flooding between Florenceville and Hartland. At Hartland, families were evacuated from their homes. On Main Street, one house was totally isolated and the water lapped the rear of all remaining buildings on the street. At Woodstock, minor damage occurred at Island Park.

In Fredericton, numerous cellars were flooded throughout the downtown area. A portion of Campbell Street was blocked by flood waters between Westmorland and the Legion Parking Lot. The C.N.R. underpass was inundated to a depth of more than 18 inches and Route #2 was submerged at Wilsey Road.

In the Oromocto Valley, Route #28 was submerged between Geary and Blissfield and between Blissfield and Welsford. A secondary highway was submerged at Rusagonis.

In the Maugerville-Sheffield area, some families were evacuated. Highway communications were cut off in the Jemseg and Maugerville-Sheffield areas and some washouts occurred along the Trans Canada Highway in this area. In the Maugerville area, at least a dozen homes and some barns were flooded. Several greenhouses were flooded causing a great loss of seedlings.

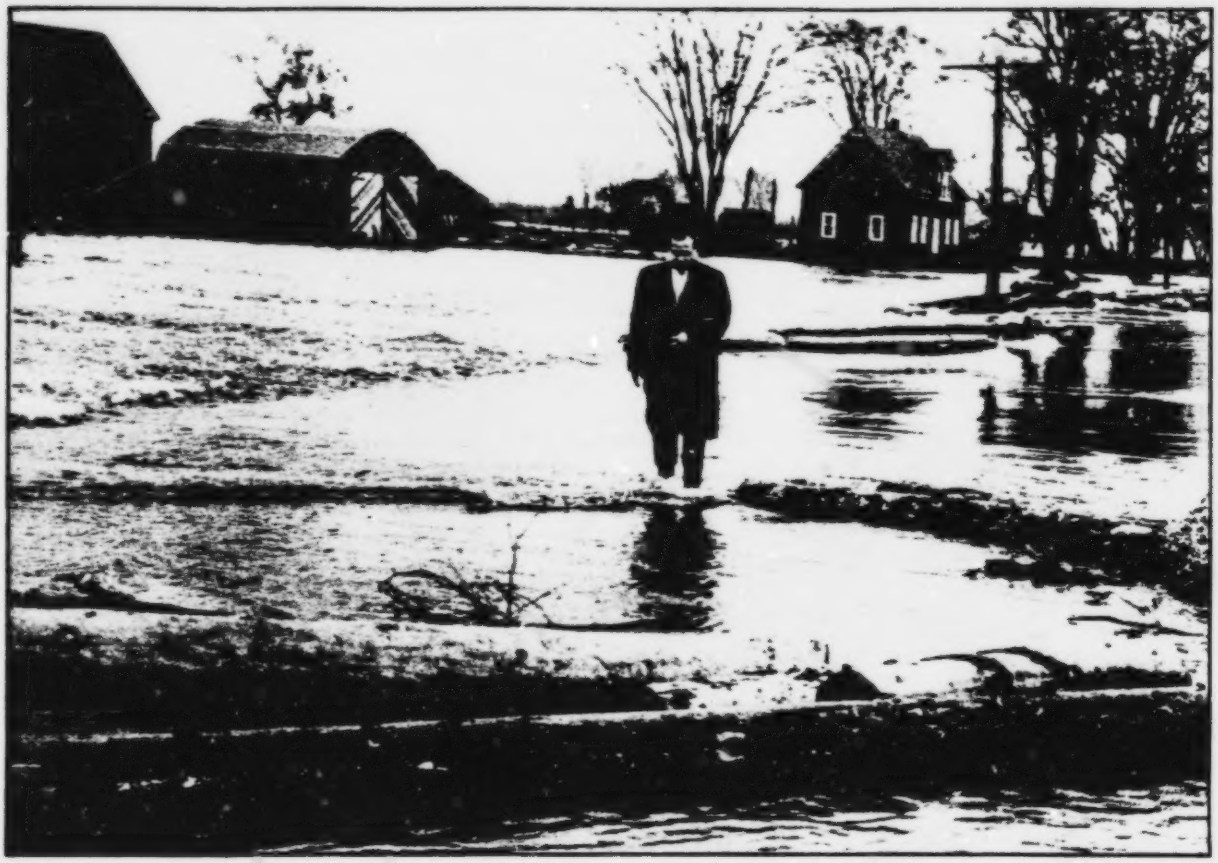
Magnitude: On the Allagash and Fish Rivers and on the Saint John River at Fort Kent, the highest levels in 30 years were recorded. At Pokiok, the maximum daily mean discharge was 241,000 cfs, and the stage at Fredericton reached a peak of about 23.9 feet on May 16.

Damages: Estimates of overall damage were reported in newspapers to be as high as one million dollars. A report of the U. S. Corps of Engineers states that damages at Fort Kent were estimated at $350,000.

Flood of May 25 - 31, 1961

Cause: A severe extra-tropical storm caused rainfall of over four inches on most of the Saint John River Basin below Grand Falls. Rainfall exceeded eight inches on most of the Nashwaak River Basin and

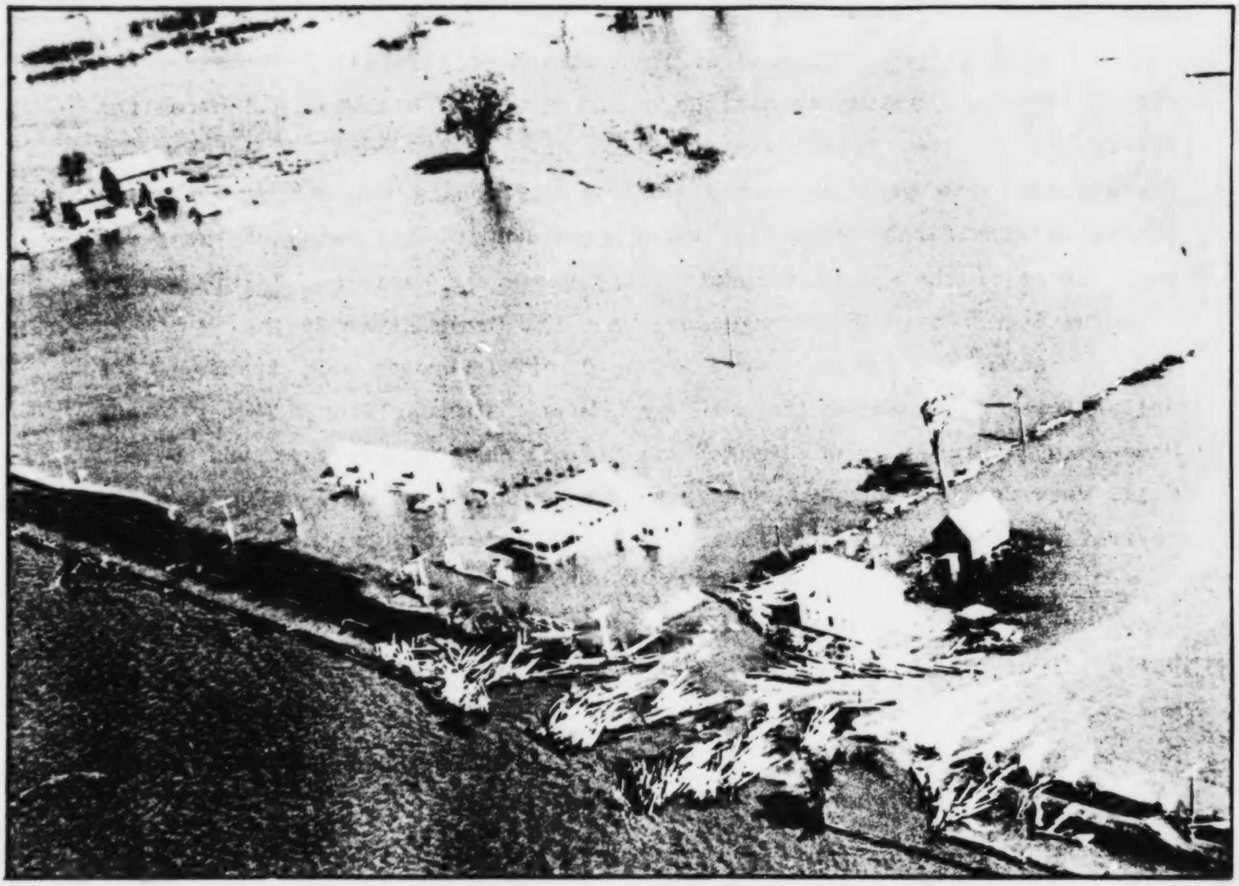
Photograph 18



Hon. Louis J. Robichaud, former Premier of New Brunswick
inspecting flood damage along Saint John River
in Maugerville area, May 29, 1961.
River is near peak of second flood.

Photo Credit: Daily Gleaner

Photograph 19



Flooded lands in Maugerville area on Saint John River, May 19, 1961., River is near crest of mid-May flood.

Photo Credit: N.B. Electric Power Commission

parts of the Oromocto River Basin. A rainfall of 3.4 inches was recorded in the Newcastle-Chatham area with considerable heavier rainfall in the up-river areas. In the St. Stephen-Calais area, a total rainfall of about 4.95 inches was recorded. A secondary cause was the fact that this storm occurred only two weeks after spring runoff, when storage in reservoirs and natural lakes was at its maximum and when infiltration rates were low and channel storage high.

Description: Because of the pattern of rainfall produced by the storm, serious flooding conditions occurred on the Nashwaak and Miramichi Rivers. The low lying areas along the Saint John downstream of Fredericton also were subjected to severe flooding conditions partially because a significant volume of water remained in this reach of the river as a result of the snowmelt runoff flood two weeks earlier. Fairly severe flooding occurred in the Magaguadavic and St. Croix River Basins.

About 35 bridges were damaged or destroyed and thousands of dollars damage occurred to railway lines. In Carleton, Victoria and Madawaska Counties, the damage was restricted to highways and farms. Rail service, telephones and electrical services were disrupted in several sections of the Province.

In the Upper Saint John River Basin, flooded basements and highways were inundated in Fort Kent and area. In the Tobique River Valley, four small bridges were swept out between Plaster Rock and Nictau and two between Nictau and Riley Brook. The pumping station at Plaster Rock was flooded. The highway between Plaster Rock and Arthurette was closed because of flooding at Beveridge and Wapske.

A bridge was swept away at Newburg Junction, across Phillips Creek. In Woodstock, Water Street was inundated and closed to traffic. The swollen Keswick River undermined the highway north of Barton. A bridge across Phyllis Creek was washed out and army engineers were used to erect a temporary structure.

In the Nashwaaksis area, basements were flooded and culverts were washed out along Heron Road and Royal Road. At least one railway washout occurred and the Stone Bridge was damaged.

Rail lines along the Nashwaak River and in Fredericton were washed out. Severe damage occurred to buildings and farms from Marysville to Taymouth and numerous cottages were lost. Several small bridges in the Nashwaak Valley were lost as well as covered bridges at

Penniac and Durham Bridge. The southern approach to the bridge at Taymouth was washed out. At Penniac, homes were isolated and livestock was lost. Near Nashwaak Village, 117 Boy Scouts were forced to break camp; camp gear and five vehicles were left behind. The Anglican Church at Durham Bridge was undermined. In the Stanley Flats area, five homes were evacuated and water was over the road in several places.

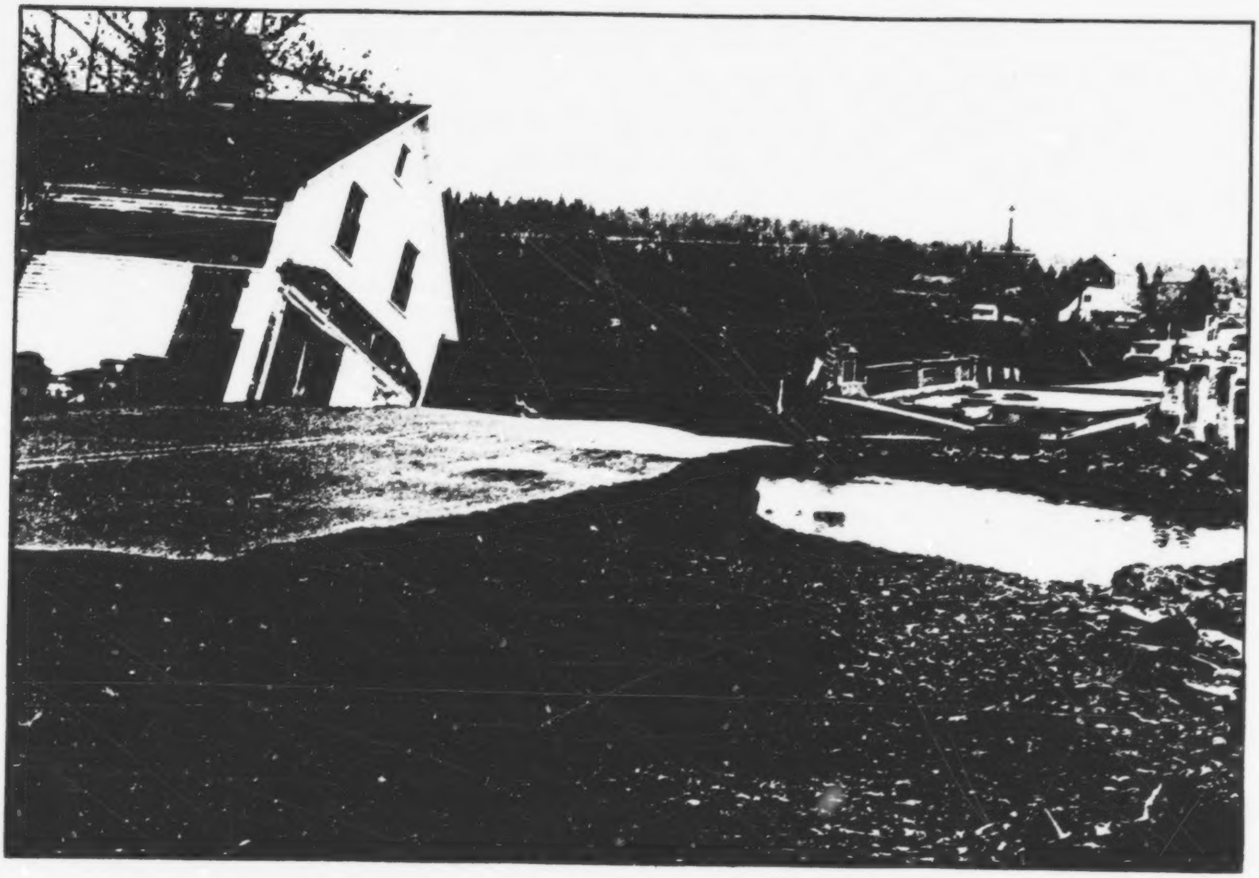
About 175 residents of Lincoln Flats were isolated except for travel by boat.

Near the head of the Salmon River, Chipman, booms broke and pulpwood was lost. Two bridges in the vicinity of Gaspereau Forks were swept away.

In Kings County, rivers and streams overflowed their banks, but no serious damage was reported other than some minor washouts.

Flooding occurred throughout the Miramichi River Basin. Rail lines and highways were inundated and/or washed out at several points. Several small bridges were destroyed. Telephone and electrical services were disrupted. Sawn lumber and pulpwood was carried away and fishermen lost salmon nets. A number of families were forced from their homes in low lying areas. Cottages and camps were destroyed in several areas. Foot bridges were swept away at Price, Arbeau and Keenan. Priceville was virtually isolated when a small covered bridge, linking Big Hole Brook and Storytown, was swept away. The approach to the bridge at Porters Cove was washed out. A wooden bridge at Bartholomew was also destroyed. Damages were reported from the communities of Blackville, Upper Blackville, Renous and Pineville on the Southwest Branch; Red Bank, Sunny Corner, Exmor and Curventon on the Northwest Branch, and Lyttleton and Mathews Settlement on the Little Southwest Miramichi. Families were evacuated at Greenfield, Renous, Sunny Corner, Blackville and Juniper. Sawmills were flooded at Doaktown, Blackville and Sunny Corner. A small dam on the Bartholomew River washed out. Route #8 was inundated at Blackville and 2,000 feet of C.N.R. track was submerged at McNamee. Fishing camps and cottages along the Cains River and in the McNamee area were damaged and several destroyed. Livestock all along the river was moved to higher ground, but 100 head of beef cattle were lost near Red Bank. A twenty-one year old man was drowned in swollen waters of the Bartibog River.

Photograph 20



Town of Nashwaak Bridge on Nashwaak River
after flood of May 28, 1961

Photo Credit: Daily Gleaner

In the Musquash River Basin, a portion of the dam at West Musquash Reservoir was washed out.

In the Magaguadavic River Basin, crops were ruined by the heavy rains and flood waters. Dwellings were damaged, highways and rail lines were washed out at several places. The highway to Brockway was severed by flood waters. Bonny River and Second Falls were virtually isolated when highways became inundated. Twelve families in this area were forced to evacuate their homes. At Lake Utopia, at least one-half of the summer cottages were either flooded or moved off their foundations. At St. George, telephone services were disrupted and the pulp mill closed because of high water. Homes were surrounded by water, basements flooded and three families were forced to leave their homes.

In the McAdam area, many homes had flooded cellars and one store had water damage. A residence, at the rear of the store, had to be evacuated. About 128 Boy Scouts were forced to leave camp because of the flooding in this area.

The C.P.R. cancelled trains from Saint John to McAdam, McAdam to Edmundston, Aroostook to Plaster Rock, Chipman to South Devon and Chipman to Norton.

Power lines were broken at Bocabec, Chamcook and Lindfield, as well as St. Stephen. Telephone service was disrupted at St. Stephen.

In the St. Croix River Basin, bridges were closed because of damages at Milltown and Union Mills. About 50 feet of an international span at St. Stephen collapsed when a pier on the Canadian side was undermined. At Milltown, water surrounded homes on South and Water Streets, forcing some families to evacuate their residences. Some highways in the area were impassable. At the Grand Falls Dam, 10 inches of water was reported to be over the floor of the generating plant. The St. Croix Paper Company Mill reported that more than 100,000 cords of pulp were lost when a boom broke.

Magnitude: The Tobique River was reported to be at its highest level since 1922. The Shikatehawk Stream at Bristol was said to be at its highest level in 15 years. The stage at Fredericton reached 24.3 feet in elevation, and the maximum daily mean flow at Pokiok was 249,000 cfs. These are both slightly greater than those reached during the snowmelt flood two weeks earlier. At Oak Point, the stage was the fourth highest since 1923, exceeded only in 1934, 1936 and 1958.

In Kings County, the streams were reported to have been higher than the annual spring freshet which was below normal this year.

In the Miramichi River Basin, the flooding was the worst in the memories of the oldest living residents. The water level at Doaktown was reported to be two feet over the record set in 1923.

The floods in Charlotte County were said to be the most serious since 1923. The freshet was the highest in eight years on the Magaguadavic and Bonny Rivers. The flow at Grand Falls Dam, St. Croix River, was said to have been in the order of 20,000 cfs.

Damages: Newspaper reports carried estimates of total damages as high as seven million dollars in New Brunswick, with 1.5 to 2 million dollars damage to roads and bridges, and two million dollars to private property. However, on the basis of documented information, it appears that actual damages were probably considerably lower than this figure. The available information on damage to various sectors is summarized as follows:

A. Damages to Private Property (reported by New Brunswick Disaster Fund)

Saint John River Basin (excluding Nashwaak and Tobique Basins)	$175,000
Nashwaak River Basin	110,000
Miramichi River Basin	90,000
Tobique River Basin	18,000
Other River Basins	6,500
TOTAL	$399,500

B. Damages to Bridges (reported by New Brunswick Dept. of Public Works)

Northumberland County	$ 58,000
Kings County	15,000
York County	330,000
Carleton County	49,000
Charlotte County	84,000
Victoria County	20,000
Gloucester County	1,000
Queens County	18,000
Saint John County	6,000
TOTAL	$581,000

C. Damages to Roads and Highways (reported by New Brunswick Dept. of Public Works)

Northumberland County	$ 7,446
Westmorland County	5,253
Saint John County	1,995
York County	481,123
Carleton County	59,554
Charlotte County	16,985
Victoria County	51,309
Queens County	33,024
Sunbury County	45,581
Kings County	7,803
Highway #8	248,737
Highway #9	156,491
TOTAL	$1,115,301

D. Damages to Railway Tracks and Bridges (reported by Canadian Pacific Railway Company)

Saint John River Basin below Fredericton	
(Brownville Division)	$ 1,716
(Woodstock Division)	11,000
Saint John River Basin above Fredericton excluding Tobique and Keswick Basins	
(Woodstock Division)	2,000
Tobique River Basin	5,000
Keswick River Basin	42,000
Digdequash River Basin	17,000
TOTAL	$78,716

No information is available on losses by C.N.R. However, newspapers reported considerable washout of track in Carleton County, along the Nashwaak River and in the Miramichi River Basin. It is not unreasonable to assume that these losses were of the same order of magnitude as those of the C.P.R.

E. Municipal Losses

The only municipality in New Brunswick which reported damages during this flood was Fredericton. A city engineer's report from that City showed that repairs to streets and drains, damaged during the flood, cost about $30,000. Newspapers reported other municipal damages in Stanley and Marysville along the Nashwaak and in Woodstock's Island Park.

An estimated $25,000 damage occurred to streets and roads in Fort Kent, Maine.

F. Other

Not included in the reported damages are costs of repair to telephone and power distribution facilities or to industrial and commercial property. Newspaper reports indicate considerable destruction of utility lines along the Nashwaak, Miramichi and in the southwestern portion of the Province.

Indirect damages from this flood were probably significant as well. Included in this category of damages would be such things as inconvenience due to closed transportation routes. Almost all the inter-urban trains and buses were cancelled during this flood and for a few days after. Utility disruptions probably resulted in some indirect damages.

One life was lost when a 21 year old man drowned in the flood swollen Bartibog River.

Flood of March 31 - April 4, 1962

Cause: A storm dropped heavy rain on the Maritimes from March 31 to April 2.

Description: Flooding occurred along many rivers where bridges, highways and railway lines were washed out. Several communities or portions thereof were isolated. The flooding was generally confined to the southeastern portion of the Province. The heaviest damages were outside of the Saint John River Basin.

In Saint John, flooding occurred in the northern and eastern sections of the City and surrounding areas. Streets and highways were blocked. Numerous basements were flooded and considerable damage to homes in East Saint John and Simmonds area. Marsh Creek area was inundated. A number of Glen Falls residents moved to and from their homes by boat. Eleven families in the Saint John area were stranded; three at Gardiner's Creek and eight at Black River when the old Black River Road Bridge and another at Gardiner's Creek were washed out. Another bridge on Red Head Road was also swept away.

In Kings County, the Kennebecasis River and its tributaries flooded highways, washed out bridges, invaded businesses and forced people from their homes.

At Sussex Corner, Highway #2 was inundated for approximately one-quarter mile.

In Sussex, Ward's Creek overflowed, inundating O'Connell Park with more than one foot of water. The flood water re-entered its original course just south of the Main Street highway bridge. Several families on Holman Avenue had to vacate their homes when they became surrounded by the flood water. All the homes in this area had flooded basements resulting in minor damage except one which had problems with the foundation. Homes on Stewart Avenue also experienced flooded cellars.

On Maple Avenue, water was reported to have risen to within one foot of the Save-Easy Store's ground floor. The pumping station and sewerage departments were isolated when water coursed along Magnolia Avenue and through private property to Main Street. Flood waters entered the service station of Lawson Motors Limited and Queen Street Extension was inundated about a quarter mile from the river's normal course. Most of the town was left in darkness for a time when a 66,000 watt line toppled as a result of a pole being washed out.

Flooding of a service station occurred at the Roachville Bridge on Sussex's western outskirts and several vehicles were submerged.

At Apohaqui, some 40,000 feet of logs at Jones Bros. Limited sawmill (on the banks of the Millstream) were washed away.

At Norton, the river inundated stores, homes and cut off the southern section of the community from outside communication. The Main Street was under three feet of water for several hours. Two stores - E.K. Cripps and Perkins Hardware - were flooded to a depth of two feet or more. The water was reported to have reached the step below the cement entrance to Burley's Mart. Many homes in Norton could be reached by boat only.

A small cement bridge (across Smith's Brook) at Bloomfield was reported to have been washed out. Other highway closures occurred at Berwick and Apohaqui.

At Fundy National Park, several roads were washed out, and Alma could not be reached from the east. Extensive damage was also reported to have occurred to the golf course.

In the Moncton area, several homes were reported as being evacuated and water poured over dozens of streets. Communications and business activities were disrupted because of flooded roads and commercial establishments. In the west end of the City, an earthen dam at Jones Lake was overtopped, inundating a service station. The underpass on the Salisbury Road was flooded. The highway at Jones Lake was inundated and a washout occurred between MacKinnon Road and Uplands School. West Main Street was submerged; huge ice cakes dotted the streets and damaged several parked cars. At 1615 Main Street, water rose over the first floor. Residents were forced to evacuate at least six homes on New Street. A bridge, on Royal Boulevard, over Johnathan Creek, was submerged. A bridge was washed out at Parkindale. Two other bridges were washed out, one at College Bridge and one over the Shediac River. Highway #2, between Moncton and Sackville, was submerged at Fox Creek, Breau Creek and Frosty Hollow. A freight train was marooned 14 miles east of Moncton at College Bridge. The C.N.R. roadbed had been washed out. Other washouts occurred on the C.N.R.'s Springhill, Tormentine and Middleton Sub-Divisions.

At Middle Sackville, Cedar Brook and Silver Lake erupted, flooding residences and business establishments.

In Sackville, most of the town was without power and the drinking water was contaminated for several days. Streets were covered with water and several houses in one section of town were evacuated. The C.N.R. was flooded in a number of places within the town and a washout occurred between Sackville and Amherst. Commercial establishments in the eastern end of town that were affected are Black's Hardware, Chignecto Bakery and Armco Drainage and Metal Products plant as well as two warehouses near the railway tracks. Many basements were flooded as a result of clogged drains and ditches. Three streets were closed to traffic and others were threatened in the areas of Lorne, Dufferin and Wellington Streets.

Magnitude: A record 4.3 inches of rain fell at Moncton in a 24 hour period; the previous high was 3.92 inches recorded in September, 1940. The flooding which occurred in the Moncton area was said to be the heaviest in memory.

At Sackville, it was reported that about 25 inches of snow was on the ground prior to the flooding.

Official records reported 5.04 inches of rain at Sussex. The flooding in the Sussex area was said to be the "worst in many years, perhaps since 1923".

A total rainfall of 5.24 inches for three days was recorded in the City of Saint John

Damages: The estimated damages from newspaper reports for Service Station in the west end of Moncton was $25,000.

Black's Hardware Store, in Sackville, estimated damages at $75,000. At least 50 people in Sackville were forced from their homes and the property damage was extensive. The total damages in Sackville were estimated to be in the order of $197,000 and reported as:

Business and Industry	$175,000
Municipal Property	$ 12,000
Private	$ 10,000

Damages in Kings County were reported to be very heavy and it was estimated to have exceeded $100,000. A small quantity of lumber was swept away from the Phillip's Lumber Company's yard at the end of Holman Avenue, Sussex. For only the second time in its history, the mill, owned by Jones Bros. Ltd. in Apohaqui, suffered losses due to flooding.

Flood of April 6 - 7, 1962

Cause: Heavy rainfall.

Description: At Sackville, in the wake of previous flooding, the heavy rain resulted in some basement flooding. However, no serious damage was reported.

Sections of St. James Crescent, St. Charles and Lorne Streets were inundated as well as the low lying marshlands.

Magnitude: About two inches of rain was reported in the Sackville area. This was the second flood in Sackville during the past week.

Damages: No estimates or description of the damage were given.

Flood of November 15 - 16, 1962

Cause: Gale force winds, high tides and heavy rainfall.

Description: Gale force winds and tides caused minor flooding in Southeastern New Brunswick inundating wharves, highways, and isolating several homes.

The area hardest hit by the storm was between Buctouche and Shediac. A newly paved road near Buctouche was submerged with as much as five feet of water in some sections.

A 1000 foot long wharf at St. Edwards suffered damage and was submerged for most of the 15th. Other wharves in the district, including Shediac, Point du Chene and Cape Bauld, withstood the storm except for being partially inundated. Some lobster traps were reported to have floated away.

At Shediac Yacht Club, the dock was submerged and water threatened the club itself.

No damage was reported to cottages in the area.

Magnitude: Gusts as high as 70 mph were noted several times at Moncton.

Damages: No estimates of damage were presented.

Flood of November 22 - 25, 1962

Cause: A heavy rain storm swept over the Maritime Provinces.

Description: At Sackville, streets in the lower section of town were covered with up to eight inches of water. The Lorne Street pumping station was inundated and the town was reported to be without power for about four hours. The Tantramar River was swollen to "bank full". A section of Highway #2, at Frosty Hollow, was flooded with almost two feet of water.

Magnitude: A rainfall of 3.25 inches was reported for Sackville in a 24 hour period.

Damages: No estimates of damage were presented.

Flood of May 1 - 10, 1963

Cause: Rain and melting snow (normal spring freshet).

Description: In the Saint John River Basin, the flooding reported in the newspapers was restricted to the Lower Saint John. Some waterfront basements were flooded in the Fredericton area. The C.N.R. subway was flooded and water was over Route #2 near Wilsey Road. At Lower St. Mary's and Barkers Point, fields near the river were inundated. Flooding occurred at Princess Court, Lower St. Mary's. High water levels caused flooding of interval land in the Maugerville-Sheffield area and sections of Route #9 through this area.

At Frosty Hollow, Westmorland County, Highway #2 was inundated, and Sackville was threatened with flooding.

In the Magaguadavic River Basin, interval land was inundated. The communities of Bonny River and Second Falls were threatened with isolation. In St. George, some cellars were flooded.

In the St. Croix River Basin, some families were reported to have evacuated their homes.

Magnitude: The maximum water level at Fredericton was 22.2 feet. At Mactaquac, the maximum daily mean discharge was 196,000 cfs.

The depth of water over the highway at Frosty Hollow was said to be about two to three feet.

Damages: The only report of damage is from the New Brunswick Electric Power Commission which suffered losses of $13,475.

Flood of April 16 - 18, 1964

Cause: Heavy spring rains for two days; ice jams.

Description: In the Saint John River Basin, Route #21 across Keswick Flats was inundated. At Fredericton, the parking lot behind City Hall was partly flooded. The ice run may have caused some damage to waterfront property, but no reports were carried in the newspapers. A section of highway, at Lincoln, was blocked by ice cakes temporarily.

In the Nashwaak Valley, an ice jam at Marysville Bridge forced closure and some flooding occurred in the community. A few miles above Marysville, another ice jam caused flooding of Route #8 and temporary closure. Route #25A, Nashwaak Bridge to Stanley, was closed to traffic but it is not known whether this was related to the flooding.

In the Miramichi River Basin, residents of Boiestown and Doaktown waited in anticipation as a huge ice jam formed upstream of these communities.

Magnitude: The level of the Saint John River at Fredericton was in the order of 18.4 feet.

Damages: No estimates of damage were reported in the newspapers.

Flood of Mid-May, 1967

Due to melting snow and rain, the Magaguadavic River overflowed its banks, inundating fields and interval land.

Flood of May 26 - 27, 1967

Cause: Heavy rainfall, high tides and hurricane force northeast winds.

Description: In Newcastle, the downtown area was inundated by floodwaters. There were flooded basements along Castle Street, and the water was reported to be level with the furnace room door at the North Shore Leader office. When the flood waters receeded, lumber and debris were scattered along the shoreline.

Magnitude: The storm was reported to be one of the worst in recent memory.

Damages: No estimates of damage were reported.

Flood of March, 1968

Ice jams were reported on the Restigouche and Matapedia Rivers, resulting in flooding in the Village of Matapedia.

Flood of April 6 - 10, 1968

Cause: Rain, melting snow and ice jams.

Description: In the Saint John River Basin, an ice jam near Florenceville caused water to back up over the highway near Buckwheat Bridge. The water intake to McCains Food Processing Plant was blocked by ice and forced cancellation of production.

In Hartland, an ice jam caused flooding of homes and business establishments. The pumping station was put out of commission when ice destroyed the main transformer there. Telephone and electrical services were disrupted in other areas due to the destruction of lines. The southern highway approach to the town was blocked by water for a period of time. Several homes had flooded basements and two families were evacuated from their homes by boat when water reached a depth of 14 inches over the main floor. The business establishments were reported to be hard hit. Serious damage was reported to have occurred at the United Baptist Church and at the Capital Theatre.

In Fredericton, the parking lot on Campbell Street near the Capital Yacht Club was inundated.

Some flooding was reported on the Restigouche and Matapedia Rivers.

Magnitude: At Hartland, it was reported that similar flood levels had occurred in 1953.

Damages: Newspaper reports estimated the total flood damage in the order of $100,000. One store in Hartland was said to have about $7,000 worth of damage. At Hartland, flood damages totalling $17,000 to $18,000 were reported by the Town Clerk.

Flood of October 20 - 22, 1968

Cause: Hurricane Gladys swept the Maritime Provinces accompanied by heavy rains and high tides.

Description: In Gloucester County, Shippigan Island was severed from the mainland when the causeway bridge became inundated by the high tides. A one mile section of highway between the communities of Shippigan and Inkerman was also submerged by the tides.

At Newcastle, the Miramichi River was reported to have risen about six feet above normal to threaten a number of buildings and overtopped the wharves.

Six families in the Richibucto area were forced from their homes as heavy rains swelled the Richibucto River to eight feet above normal. The public wharf and many village streets were flooded.

Magnitude: At Moncton, a rainfall of 4.17 inches had fallen in a 24 hour period.

At Chatham, a rainfall of 1.98 inches was recorded on October 21.

Damages: In Newcastle, the merchants were reported to have been prepared by moving stock to safety.

Flood of May 11 - 13, 1969

Cause: Spring freshet.

Description: Flood conditions prevailed over the upper portion of the Saint John River Basin. Serious flooding occurred at Fort Kent, Maine, when the Saint John River rose more than 14 feet. Several families were forced to evacuate their homes and at least 15 business establishments reported flood damages. In New Brunswick, at Edmundston, the river reached 16 feet above normal. A nine year old boy was drowned in the flood swollen river at Iroquois.

Flood water also caused damage at Ste. Anne-de-Madawaska, Bristol and at Grand Falls where the generating station was surrounded by water. Two feet of water covered the power station with all gates open. At Hartland, a level two feet below that of 1968 was reached.

Extensive flooding in the town of Green River resulted from overbank flow of the Green River. At Plaster Rock, Fraser's Mill was shut down due to the rising waters of the Tobique River. Highway #126 was flooded three miles north of Tilly. At Woodstock, the Mactaquac headpond peaked at 133 feet.

At Fredericton, the Campbell Street parking lot was flooded. Some water entered the basements of the Capital Garage, Capital Yacht Club, Beaverbrook Hotel and the Beaverbrook Art Gallery. Blighty's Fish and Chip stand on the Regent Street Wharf was surrounded by water. The C.N.R. subways on Queen and Union Street were closed to traffic due to flooding. In Barker's Point and Lower St. Mary's, some houses were surrounded by water and at least two families left their residences.

Along the Nashwaak River, the interval lands were inundated.

The Trans-Canada Highway from Fredericton to McGowan's Corner was closed to traffic and farmlands to the north of the highway were inundated.

Magnitude: The water level at the Fredericton pumphouse reached 23.8 feet. In Restigouche County, rivers and brooks reached flood levels. Several homeowners of the St. Albert District experienced anxious hours as Walker Brook overflowed its banks. One small bridge was carried away.

Damages: The U.S. Corps of Engineers reported damages in the order of $500,000 at Fort Kent, Maine. Additional costs included $20 for respirs to the C.N.R. line. One life was lost at Iroquois, Madawaska County.

Flood of February 2 - 6, 1970

Cause: Heavy rainfall, high temperatures and ice jams.

Description: Very low temperatures and abnormally low snowfall caused thick and hard ice covers on the rivers and lakes during the winter of 1969/70.

From February 2 to February 4, precipitation upwards of four inches, and unseasonably high temperatures occurred. About 3.7 inches of rain fell on central New Brunswick, followed by two inches of snow. The Fredericton Weather Office reported two to three inches of rain in eastern New Brunswick and between three and four inches in the western sector. In the southern portion of the Province, including Saint John and Sussex, more than four inches of rain was recorded. In Fredericton, a record rainfall for the month of February of 2.95 inches fell in a 24 hour period.

The storm was accompanied by winds gusting as high as 70 miles per hour.

Following the precipitation, the ice-packed streams started to break up on the 3rd or 4th and by morning of the 5th, ice flows were rushing down the Meduxnekeag, Nashwaak, Oromocto, Keswick, Miramichi and Magaguadavic Rivers.

Flooding was heavy in most parts of the Province, but particularly within a 50 mile radius of Fredericton where several communities or settlements were completely isolated. Highways suffered considerable damages as well as being impassable for several days at many points. Telephone and power services were also disrupted in several areas. Farmers reported excessive losses of livestock, barns and equipment. Homes and cottages along the rivers were either damaged or lifted from their foundations. The C.N.R. and C.P.R. were plagued with water and ice damage.

According to the Department of Public Works, Supplementary Report, 32 major structures were completely destroyed and an additional 124 structures received varying amounts of damage.

In the Saint John River Basin, damage occurred at the fish hatchery at Florenceville when a portion of the storage dam was washed out. A small stream near Bristol overflowed and demolished six cabins at a church summer camp. On the Meduxnekeag River, eight miles above Woodstock, two homes and a bridge were destroyed by flood waters and ice.

In the Keswick River Valley, the interval land was inundated and a bridge at Burtt's Corner was destroyed.

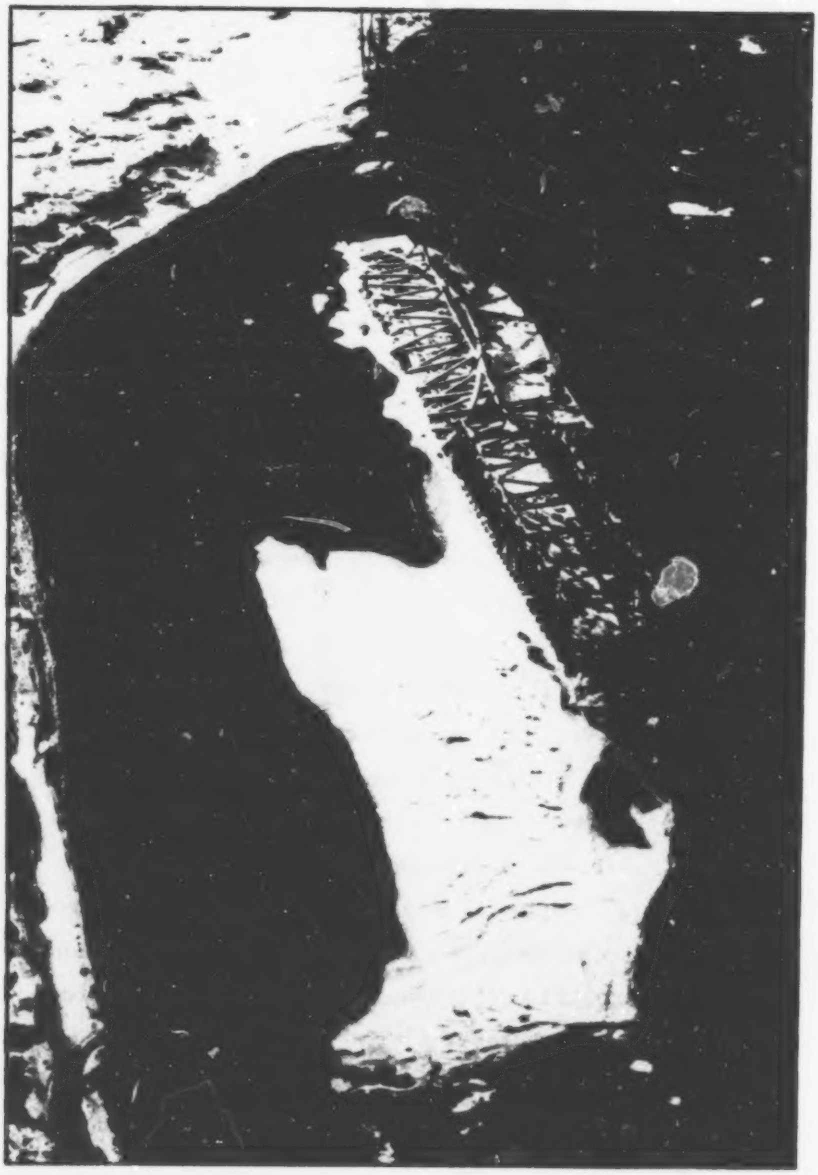
In Nashwaaksis, many instances of flooded basements were reported. A bridge on MacFarlane Avenue was submerged and extensive flooding occurred on Brookside Drive. Main Street was flooded in the vicinity of the York Shopping Plaza.

Most of the highways in the Fredericton area were closed due to flood waters. In Fredericton, many basements were flooded as well as intersections in the low lying areas.

In the Nashwaak Valley, bridges were destroyed at Marysville and Durham. Several cottages along the Nashwaak River were inundated. In Marysville, basements were flooded near the corner of Bridge and River Streets as well as along the north end of Canada Street.

In the Oromocto River Valley, highways and railway washouts occurred. Bridges were washed out at Blissfield, Beaver Dam (South

Photograph 21



Durham Bridge on February 4, 1970. Bridge is shown several miles downstream from original site.

Photo Credit: N.B. Provincial Archives

Rusagonis) and at Wirral. Residents of Hoyt were isolated and a number of cattle were lost. The railway bridge at Bailey was damaged by ice.

Two families were stranded at North Minto when a bridge over Newcastle Creek was washed out. Other homes in this area had to be vacated when basements became flooded. A bridge in the Salmon River watershed was destroyed near Gaspereau.

In Kings County, heavy damage was reported to have occurred to secondary roads and several were closed because of washouts.

In Sussex, the Holman Avenue area appeared to be the hardest hit with several homes being surrounded by flood waters. One cellar wall was reported to have collapsed. On the lower side of the Kennebecasis, the water was reported to be "lapping" the Save-Easy building and spreading west to Queen Street. Residents on that portion of Queen Street were reported to be encountering difficulties entering or leaving their homes. On mid-Main Street, water pushed toward business premises and vehicles parked in some areas were moved for safety. On upper Main Street, Kirk Brook overflowed its banks onto residential property.

O'Connell Park was reported to be "enjoying one of its periodic baths".

At Sussex Corner, water from Trout Creek was reported to have reached the highway in the area of the bridge.

At Norton, water was reported to be lapping against some low lying buildings in the village.

In the Saint John area, Marsh Creek overflowed its banks, inundating streets, lawns, pouring into basements and, in some cases, over main floors. About 100 families in the Glen Falls area were affected.

In the Miramichi River Basin, damage by water and ice to highways, railway lines and bridges was quite extensive. The ice from the Taxis River jammed at McNamee, closing Route #8 at Ludlow. A freight train was also halted there because of water and ice over the tracks. The highway was also closed at Porters Cove. Several camps in the area were damaged and, in some instances, were swept from their foundations. Some homes in the Boiestown area were flooded and residents were forced to evacuate them. At Doaktown, cottages and homes were flooded. Bett's Mill was reported to be completely destroyed by ice. The community of Arbeau was reported as being isolated. In the Cains River area, fishing and summer camps were damaged or destroyed and at least four families were isolated. At Keenan Siding, a bridge across a brook was washed out.

On the Northwest Miramichi, a home at Exmoor was isolated and at least seven sports camps were destroyed.

At Lyttleton, on the Little Southwest, two homes were swept off their foundations. Other bridges in the river basin were destroyed.

At Nelson-Miramichi, several residences near the river were evacuated, particularly along Main Street..

At Newcastle, an ice jam occurred at Morrissey Bridge. This jam was reported to be at bridge level which is about 50 feet. Two ice breakers, the Tupper and Wolfe, were brought to the area in an attempt to break the ice jam. In the northeast section of town, homes were evacuated on Water and Lower Castle Streets. About 25% of the downtown business establishments were flooded, particularly in the Castle and Mitchell Streets area. Approximately 50 cars, owned by two automobile dealers near the river, were damaged. The town's water supply was polluted and oil tanks situated on the wharf were threatened.

In Charlotte County, many basements and secondary roads were inundated. Several bridges were damaged or destroyed.

In the Magaguadavic River Basin at St. George, several families evacuated their homes because of flooding. Bonny River and Second Falls were isolated when roads to these communities became inundated. About 16 homes in this area were inundated. Bridges were reported to be destroyed at Brockway and Lee Settlement.

In the Digdeguash River Basin, a bridge was destroyed and the community of Tryon was isolated.

At St. Stephen, some flooding occurred on King Street and power was disrupted, affecting about one-third of the town.

Magnitude: The maximum daily mean discharge of 179,000 cfs at Mactaquac and maximum stage of 20.6 feet at Fredericton are both around the average levels reached during spring freshet. The maximum daily mean discharge of 25,500 cfs was recorded on Magaguadavic River at Elmcroft. This is the extreme recorded for the period of record.

Damage: Two deaths in the Saint John Basin were attributable to the flood. One at Wirral, Queen's County, was the result of a barn collapsing. The other was a drowning at Nashwaaksis. One death was attributed to the flood in the Miramichi River Basin, a man was drowned at Keenan Siding when his car plunged into Morse Brook after the bridge had been washed out.

The documentation of damages for this flood is very good. A breakdown of the damages to the Public Sector on a Provincial basis is as follows:

Replacement Cost Less % of Maintenance

Highways	$1,122,816.62
Bridges	2,015,355.00*
Hydro Electric Facilities	207,375.00
TOTAL	$3,345,546.62

Up-Grading (additional cost)

Highways	NIL
Bridges	$3,741,000.00
Hydro Electric Facilities	12,183.00
TOTAL	$3,753,183.00

COST ANALYSIS OF DAMAGE TO HYDRO ELECTRIC SYSTEMS

Fredericton District	$ 134,635.00
Woodstock District	5,648.00
Saint John District	4,009.00
Sussex District	5,697.00
St. Stephen & St. George Districts	21,198.00
Moncton District	431.00
Sackville District	1,433.00
Chatham District	34,324.00
TOTAL	$207,375.00

Up-Grading of Hydro Electric Facilities

TOTAL $12,183

* Costs based on 1972 prices.

COST ANALYSIS OF HIGHWAY DAMAGE

	Highways	Bridges*	Up-Grading
District No. 1 - Restigouche	$ 10,236.00	$ 11,600	$ ----
District No. 2 - Northumberland	114,888.00	600,450	1,164,000
District No. 3 - Westmorland	2,227.00	----	----
District No. 4 - Kings	94,208.00	28,000	----
District No. 5 - Saint John	26,636.50	225	----
District No. 6 - York	269,884.77	721,170	1,263,000
District No. 7 - Carleton	82,757.00	101,770	182,000
District No. 8 - Charlotte	101,385.00	120,755	343,000
District No. 9 - Kent	1,198.60	4,800	----
District No. 10 - Madawaska	11,264.00	----	----
District No. 11 - Victoria	25,807.50	34,900	11,000
District No. 12 - Gloucester	7,497.00	----	----
District No. 13 - Queens & Sunbury	80,592.00	156,950	350,000
District No. 14 - Albert	51,659.00	25,830	----
District No. 15 - Sunbury East #1	1,372.00	11,560	87,000
District No. 16 - Kings West #2	131,836.50	27,800	20,000
District No. 17 - York #2	5,390.00	4,500	----
District No. 18 - Queens #2	37,845.00	44,275	91,000
District No. 19 - Sunbury West	66,132.75	120,770	230,000
TOTALS	$1,122,816.62	$2,015,355	$3,741,000

Locations of bridges damaged/destroyed during the flood are shown on Figure 18. The above breakdowns were prepared by Public Works Canada in co-operation with the Province of New Brunswick.

For the Saint John River Basin, damage estimates are available for the following:

Private Property and Agriculture	$273,416
Railways ($337,500 to $387,500)	360,000
New Brunswick Telephone Company	42,850
Town of Marysville (Road Damage)	4,027
New Brunswick Electric Power Comm.	144,609
Highways	759,281
Highway Bridges	1,242,360*
Alternate Routes	474,301*
TOTAL	$3,300,844

* Costs based on 1972 prices.

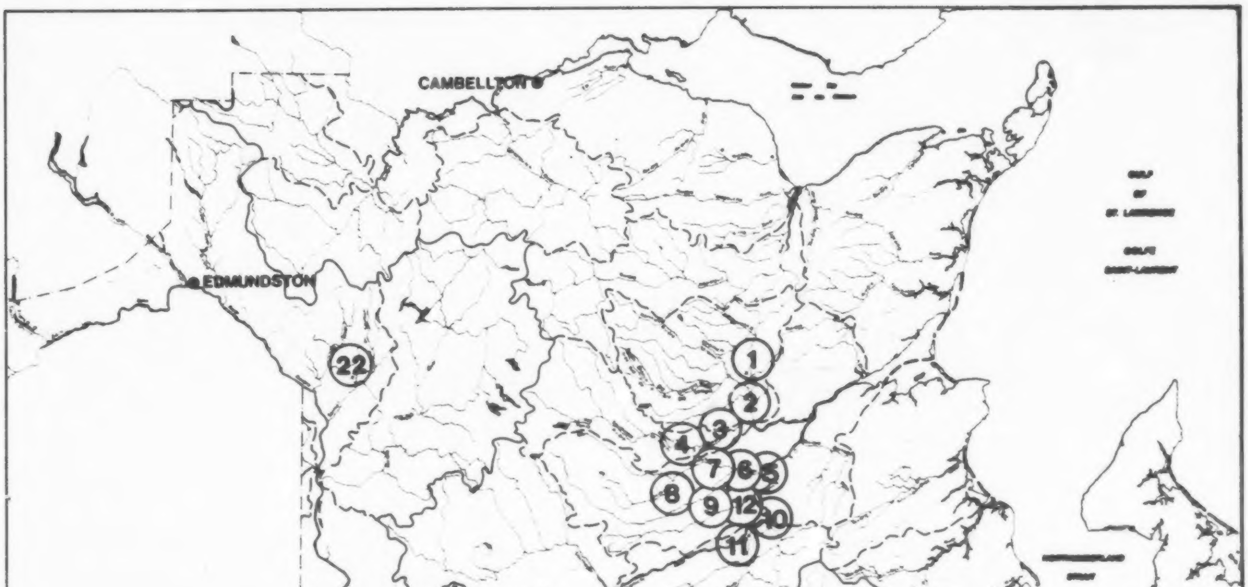

CAMBELLTON
EDMUNDSTON
FREDERICTON
MONCTON
SAINT JOHN
1. Johnson
2. Red Bank
3. McTavish Footbridge
4. Halcombe Footbridge
5. Renous River No.1
6. Renous River No.2
7. Pineville
8. Dungarvon
9. S.W. Miramichi No.2
10. Keenan Footbridge
11. Arbeau Footbridge
12. Moose Brook
13. Gaspereau River No.1
14. Newcastle Creek No.5
15. Tay River No.2
16. Nashwaak Narrows
17. Durham
18. Marysville
19. Keswick River No.3
20. Caverhill Siding
21. Meduxnekeag River No.3
22. Little River No.2
23. Baker Brook No.2
24. South Rusagonis River No.2
25. South Oromocto River No.1
26. Pond Brook No.1
27. Back Creek No.5
28. Johnson Brook
29. Magaguadavic River No.8
30. Darrah
31. Digdeguash River No.7
32. Magaguadavic River No.5

FIGURE 18

BRIDGES DAMAGED/DESTROYED BY FLOOD OF FEBRUARY, 1970

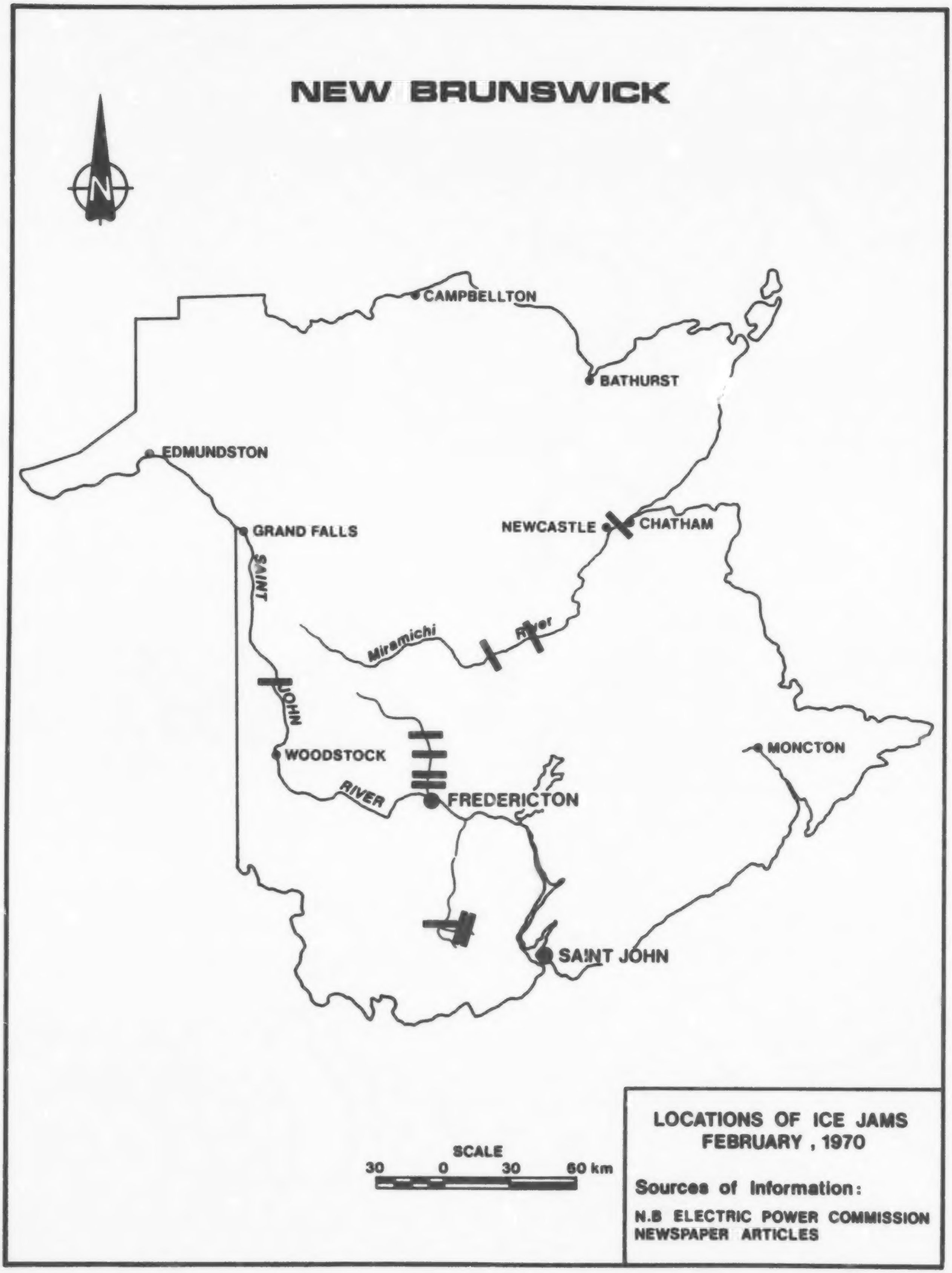

NEW BRUNSWICK
N
CAMPBELLTON
BATHURST
EDMUNDSTON
GRAND FALLS
NEWCASTLE
CHATHAM
SAINT
Miramichi
River
JOHN
WOODSTOCK
RIVER
FREDERICTON
MONCTON
SAINT JOHN
SCALE
30 0 30 60 km
LOCATIONS OF ICE JAMS
FEBRUARY, 1970
Sources of Information:
N.B ELECTRIC POWER COMMISSION
NEWSPAPER ARTICLES

FIGURE 19

This total does not include indirect damages associated with the flood which were probably quite high due to the great destruction of transportation and communication facilities and public utilities. Nor does it include the emergency costs incurred by volunteer agencies and the army at the time of and shortly following the flood.

Almost all the damage reported by the New Brunswick Telephone Company occurred in the Fredericton area. This probably includes the lower Nashwaak River Basin.

The more detailed information on damages, which is available for some sectors affected, is as follows:

Private Property and Agriculture (Saint John River Basin)

Damages in this category are broken down into the categories: agricultural losses (land and crops) and private property losses (houses, barns, furniture and equipment).

Area	Private Property	Agriculture	Total
St. Francois-de-Madawaska	$ ----	$22,477	$ 22,477
Bristol, Florenceville, Hartland and Woodstock	14,344	215	14,559
Keswick, Burtt's Corner, Zealand	5,574	530	6,104
Tracy, Fredericton Junction Rusagonis, Hoyt and Wirral	35,249	11,701	46,950
Welsford, Nerepis, Westfield Grand Bay	38,307	1,670	39,977
Chipman and Minto	2,270	1,451	3,721
Nashwaak, Nashwaaksis and Tay River Valleys	118,483	21,145	139,628
TOTALS	$214,227	$59,189	$273,416

Flood of April 30 - May 5, 1970

Cause: Spring freshet.

Description: Flood waters of the Saint John River covered approximately one-half of the city owned parking lot on Campbell Street, Fredericton.

In the Restigouche River Basin, streams were overflowing their banks in several areas. A culvert was reported to have been washed out in the St. Alberts area, and minor property damage was said to have occurred. Approximately one mile of the C.N.R. Gaspé line was submerged near Sillarsville (Sellars), Quebec. Flooding was also reported at Flatlands and Matapedia.

Damages: No serious damage had been reported.

Flood of August 3, 1970

Cause: A 4.93 inch rainfall was reported at Saint John in a 24 hour period.

Description: Flooding occurred on Rothesay Avenue, but no mention of flooding in the Glen Falls area.

Flood of October 5 - 6, 1970

Cause: Heavy rain.

Description: Torrential rains were blamed for death, injury and heavy property damage. Six inches of rain fell in the Grand Falls area in a six hour period. Water levels in the brooks and the Saint John River rose to spring levels and many overflowed their banks in low lying areas. Erosion of fields was reported to be heavy.

At Grand Falls, a home was destroyed when the foundation was undermined, and a 50 foot section of highway was torn up to a depth of 30 feet. A car plunged over an 80 foot embankment during the storm, killing one and injuring two. Another home, house trailer and a garage were damaged.

Numerous roads in low lying areas were inundated and a small bridge was washed out at Comeau Ridge near St. André. Some damage occurred between St. Leonard and Hartland. In the St. Leonard area, several homes reported basement flooding.

A C.P.R. washout was reported to have occurred near Grand Falls.

Flood of February 15 - 16, 1971

Cause: February thaw and rain.

Description: Heavy rains created a flooding situation in the Saint John area. Basements and streets were inundated. Streets affected were Rothesay Avenue and Fairville Boulevard near the Simms Machinery Division building. Carlson's Trailer Court was flooded with about 18 inches of water.

Work crews attempted to clear an ice jam which occurred at the Marsh Creek bridge. In Glen Falls area, many residents reported basement flooding.

Marshlands in Westmorland County were also reported to have been flooded in the Aulac-Tantramar area.

Flood of May 5 - 6, 1971

Cause: Spring freshet.

Description: At Nashwaaksis, Wilkins Air Field was submerged and some residents of Burpee Street complained of basement flooding.

In Fredericton, about one-half of the parking lot behind City Hall on Campbell Street, was inundated. Blighty's Fish and Chips on the Regent Street Wharf was flooded. The Little League Park on Waterloo Row was inundated.

Flood of March, 1972

Cause: Normal spring freshet

Description: In Sussex, numerous cellars were flooded and Magnolia Avenue to Main Street was reported to be under water.

Magnitude: No information was presented.

Damages: No information was presented.

Flood of May 6 - 11, 1972

Cause: Rain, high temperatures and melting snow.

Description: In the City of Fredericton, Campbell Street, between Westmorland and Northumberland, was closed due to high water. The railway underpass on Union Street was closed, while the one on Waterloo Row was passable with caution. The Lord Beaverbrook Hotel parking lot, along with others, was reported to be partially submerged. A number of basements in low lying areas were reported to be flooded. Some riverside streets were closed by police due to the flooding.

The Trans Canada Highway through the Maugerville-Sheffield area was closed to traffic because of flooding and was re-routed to Route #10 through Minto.

Some of the river ferries suspended operations when the high water covered the ferry landings.

In other areas, some flooding was reported on branch roads, and a few culverts were washed out.

The spring freshet on the Magaguadavic River caused inundation of fields and sections of highways. Some cottages were reported to be flooded at Lake Utopia. No serious basement flooding was reported.

Magnitude: At the Fredericton pumping station, the Saint John River rose to a height of 22.9 feet.

Damages: No estimates of damage were presented.

Flood of June 6 - 7, 1972

A devastating rainstorm lashed the St. André, Drummond and New Denmark area of the Saint John River Basin. Fields were eroded, numerous basements flooded and problems were created on the local highway network.

Flood of December 6 - 7, 1972

Cause: Heavy rains, wind, fog and clogged catch basins.

Description:. In Fredericton, a number of intersections throughout the City were flooded due to catch basins being clogged with snow and ice.

Minor basement flooding was also reported.

Magnitude: The Fredericton Weather Office recorded a 1.37 inch rainfall.

Damages: No description or estimates of damage were available.

Flood of January 1 - 3, 1973

Cause: Rain, melting snow and blocked drainage systems.

Description: A snow storm changing to rain caused some heavy flooding in the Saint John area. The runoff was reported to have been impeded by snow and ice restrictions of the normal drainage channels.

Heavy flooding was reported on Rothesay, Thorne and the Golden Mile, making driving hazardous and flooding basements.

In Saint John West, some residents also reported basement flooding.

Magnitude: Approximately three inches of snow, followed by 2.48 inches of rain, was recorded at Saint John.

Water on portions of Rothesay and Thorne Avenues was said to be "as deep as two feet".

Damages: No description or estimates of damage were reported.

Flood of April - May, 1973

Cause: During the latter part of April and early part of May, extreme flood conditions occurred in most parts of New Brunswick. These conditions were caused by rainfall with heavy snowmelt.

Description: The winter of 1972-73 was one of above average snowfall in northern and central New Brunswick. By mid-April, the water equivalent of accumulated snow was as high as 12 inches in some areas and averaged 7.2 inches in the Saint John River Basin above the Mactaquac Dam. Snowmelt and some rainfall from April 21 to April 24 caused river discharges of a magnitude greater than those associated with a normal spring freshet. Most rivers crested about the 24th or 25th of April and then began to recede as snowmelt rates were reduced by cooler temperatures.

On April 27, an extra-tropical (frontal) storm moved into northern and central New Brunswick, bringing higher temperatures and rainfall averaging about three inches. Rivers rose rapidly, in many cases to levels higher than previously recorded, and peaked on April 29 and April 30.

The most seriously affected part of the Province was the flood plain of the lower Saint John River in the Fredericton area and the agricultural lands a few miles downstream of Fredericton.

Other areas seriously affected by the flood were the middle and upper parts of the Saint John River Basin, the Restigouche River Basin, the Miramichi River Basin, the Grand Lake area in the lower part of the Saint John River Basin and the St. Croix River Basin.

Magnitude: The Saint John River below Mactaquac Dam reached a maximum daily mean discharge of 393,000 cfs on April 30. Based on recorded stage data, the peak stage at Fredericton was estimated to have a recurrence interval of 70 years. Most rivers gradually receded after April 30, but the lower reach of the Saint John River between Fredericton and Saint John continued to rise until May 2.

The magnitude of the flood in other areas varied from river to river, but at most stream gauging stations, the recorded discharges have estimated recurrence intervals within the range of 10 to 50 years.

Summary of Peak Discharges at Stream Gauging Stations in New Brunswick, Quebec and Maine (Ref. 14)

Station Number	Station Name	Drainage Area (sq. mi.)	Period of Record	Maximum Daily Mean Discharge prior to 1973		Maximum Daily Mean Discharge 1973		Maximum Instantaneous Discharge 1973			
				Date	Discharge (cfs)	Date	Discharge (cfs)	Date	Time*	Discharge (cfs)	Unit Discharge (cfs/sq.mi.)
Saint John River Basin											
013001	Daaquam R. @ Bridge 1 mi. downstream of Shidgel	227	1967-73	Apr. 26, 1970	9,900	Apr. 24	6,200(E)	Apr. 18	-	8,120	35.77
100	Saint John River @ Nine-mile Bridge	1,290	1950-73	Apr. 25, 1958	33,700	Apr. 24	29,800	Apr. 24	0500	30,600	23.72
105	Saint John R. @ Dickey	2,700	1946-73	May 10, 1969	71,400	Apr. 24	66,800	Apr. 29	2000	72,000	26.67
110	Allagash River near Allagash	1,250	1931-73	May 17, 1961	28,000	Apr. 29	27,200	Apr. 29	1800	29,400	23.52
013104	Saint-François 1.3 mi. downstream from Lac Saint-François	20.9	1969-73	May 3, 1970	590(E)	Apr. 28	5,765	-	-	-	
01AD003	St. Francis River @ Outlet of Glasier Lake	520	1951-73	May 12, 1969	12,800	May 1	11,600	Apr. 30	2218	12,100	23.27
135	Fish River near Fort Kent	371	1929-73	May 16, 1961	13,300	Apr. 30	15,600	Apr. 30	0400	15,800	18.14
01AD002	Saint John River @ Fort Kent	5,690	1926-73	May 16, 1961	130,000	Apr. 30	130,000	Apr. 30	0400	136,000	23.90
011702	Madawaska River 1.9 mi. downstream from Lake Temiscouata Dam	1,050	1919-73	May 15, 1969	14,700	May 5	13,100	May 5	2400	13,200	12.57
01AD004	Saint John River @ Edmundston	5,990	1967-73	May 11, 1969	131,000	Apr. 30	132,000	Apr.30	0957	134,000	22.37
01AF003	Green River near Rivière Verte	443	1962-73	May 11, 1969	15,600	Apr. 30	11,800	Apr. 29	2327	13,800	31.15
01AF006	Black Brook near St.-André-de-Madawaska	5.5	1971-73	Apr. 20, 1971	249	Apr. 29	223	Apr. 29	0453	326	59.27
01AF002	Saint John River @ Grand Falls	8,450	1930-73	May 11, 1969	201,000	Apr. 30	213,000	Apr. 30	1616	222,000	26.27
158	Aroostook River near Masardis	888	1957-73	Apr. 25, 1958	21,400	-	-	-	-	-	-
165	Machias River near Ashland	330	1951-73	June 29, 1954	13,200	Apr. 29	10,700	Apr. 29	1300	11,400	34.56
170	Aroostook River @ Washburn	1,652	1930-73	Mar. 22, 1936	37,000	Apr. 30	42,400	Apr. 30	1400	43,100	26.09
01AG002	Limestone River @ Four Falls	77	1967-73	Oct. 4, 1970	1,650	Apr. 29	2,470	Apr. 29	0643	3,080	40.00
01AH005	Mamozekel River near Campbell River	88.9	1972-73	Oct. 30,1972	409	Apr. 29	3,250	Apr. 29	1006	3,830	43.08
01AH002	Tobique River @ Riley Brook	860	1954-73	May 28, 1961	21,400	Apr. 29	16,500	Apr. 29	1730	18,000	20.93
01AH003	Tobique River @ Plaster Rock	1,210	1954-73	May 28, 1961	34,400	Apr. 29	27,100	Apr. 29	1909	33,000	27.27

Summary of Peak Discharges at Stream Gauging Stations in New Brunswick, Quebec and Maine (Continued)

Station Number	Station Name	Drainage Area (sq. mi.)	Period of Record	Maximum Daily Mean Discharge prior to 1973		Maximum Daily Mean Discharge 1973		Maximum Instantaneous Discharge 1973			Unit
				Date	Discharge (cfs)	Date	Discharge (cfs)	Date	Time*	Discharge (cfs)	Discharge (cfs/sq.mi.)
01AH004	Tobique River @ Narrows	1,670	1954-73	May 29, 1961	40,500	Apr. 29	43,200	-	-	-	-
01AJ006	Holmes Brook @ Moose Mountain	3	1971-73	May 4, 1972	63.7	Apr. 29	253	-	-	-	-
01AJ007	Holmes Brook near Holmesville	12.1	1971-73	Mar. 19, 1972	306	Apr. 29	534	Apr. 29	0256	826	68.26
01AJ001	Saint John River @ East Florenceville	13,200	1951-73	Apr. 25, 1958	240,000	Apr. 30	324,000	Apr. 30	0845	333,000	25.23
01AJ004	Big Presque Isle Stream @ Tracey Mills	187	1967-73	Apr. 18, 1969	4,380	Apr. 29	7,780	Apr. 29	0958	9,920	53.05
179	Marley Brook near Ludlow	1.47	1964-73	Apr. 15, 1964	58	Apr. 28	47	Apr. 29	0245	98	65.33
180	Meduxnekeag River near Houlton	175	1940-73	Apr. 24, 1958	5,600	Apr. 29	5,650	Apr. 29	1800	6,460	36.91
01AJ003	Meduxnekeag River near Belleville	466	1967-73	Apr. 18, 1969	11,500	Apr. 29	18,000	Apr. 29	1325	21,200	45.49
01AK001	Shogomoc Stream near T.C.H.	90.5	1918-73	Apr. 30, 1923	4,130	Apr. 29	2,770	Apr. 29	0837	3,010	33.26
01AK007	Nackawic River @ Temperance Vale	92.7	1967-73	Feb. 4, 1970	2,690	Apr. 29	3,980	Apr. 29	0601	5,190	55.99
01AK004	Saint John River below Mactaquac	15,400	1967-73	May 11, 1969	225,000	Apr. 30	393,000	Apr. 29	2100	435,000	28.25
01AK006	North Nashwaaksis Stream @ Sandwith's Farm	2.2	1966-73	Feb. 4, 1970	41.1	Apr. 29	75.7	Apr. 29	0411	151	68.64
01AK005	North Nashwaaksis Stream near Royal Road	10.4	1965-73	Feb. 4, 1970	385	Apr. 29	501	Apr. 29	0355	1,150	110.58
01AL003	Hayden Brook near Narrows Mountain	2.6	1970-73	May 15, 1972	91.3	Apr. 29	274	-	-	-	-
01AL004	Middle Brook near Narrows Mountain	1.5	1971-73	May 15, 1972	38.6	Apr. 29	125	-	-	-	-
01AL002	Nashwaak River @ Durham Bridge	561	1962-73	Feb. 4, 1970	29,000	Apr. 29	23,500	Apr. 29	1031	27,300	48.66
01AM001	Northwest Oromocto River @ Tracy	215	1962-73	Feb. 4, 1970	14,000	Apr. 29	10,200	Apr. 29	0757	14,700	68.37
01AN001	Castaway Brook near Castaway	13.3	1971-73	May 5, 1972	343	Apr. 29	301	Apr. 29	0835	466	35.04
01AP002	Canaan River @ East Canaan	258	1925-41 1962-73	May 5, 1972	8,320	Apr. 19	1,690	Apr. 19	0349	1,800	6.97
01AP004	Kennebecasis River @ Apohaqui	425	1961-73	Apr. 2, 1962	18,200	Apr. 29	3,030	Apr. 29	1403	3,830	9.01
Northeastern Basins											
011507	Matapedia River 0.6 mi. upstream of L'Assemetquagan	1,070	1968-73	May 12, 1969	17,500	Apr. 30	16,300(E)	Apr. 30	-	16,900(E)	15.79
01BA001	Restigouche River above Kedgwick River	607	1972-73	-	-	Apr. 29	24,400	Apr. 29	-	29,700	48.93

Summary of Peak Discharges at Stream Gauging Stations in New Brunswick, Quebec and Maine (Continued)

Station Number	Station Name	Drainage Area (sq. mi.)	Period of Record	Maximum Daily Mean Discharge prior to 1973		Maximum Daily Mean Discharge 1973		Maximum Instantaneous Discharge 1973			
				Date	Discharge (cfs)	Date	Discharge (cfs)	Date	Time*	Discharge (cfs)	Unit Discharge (cfs/sq.mi.)
01BC001	Restigouche River below Kedgwick River	1,220	1962-73	May 11, 1969	38,900	Apr. 29	39,400	Apr. 29	1806	46,700	38.28
01BE001	Upsalquitch River @ Upsalquitch	877	1918-33 1943-73	May 28, 1961	30,900	Apr. 29	22,600	Apr. 29	1845	24,800	28.28
01BJ007	Restigouche River above Rafting Ground Brook	2,990	1968-73	May 11, 1969	91,900	Apr. 30	88,300	Apr. 29	2323	109,000	36.45
01BJ004	Eel River near Eel River Crossing	34.2	1967-73	May 7, 1970	1,670	Apr. 29	1,440	Apr. 29	1230	1,580	46.20
01BJ003	Jacquet River near Durham Centre	197	1964-73	May 21, 1969	5,310	Apr. 29	4,810(E)	Apr. 29	-	5,930	30.10
01BJ001	Tetagouche River near West Bathurst	140	1922-33 1951-73	Apr. 25, 1958	5,330	Apr. 30	3,590(E)	-	-	-	-
01BJ006	Little River @ Carroll's Farm	43.9	1967-73	May 21, 1969	1,470	Apr. 30	1,410	Apr. 29	1848	1,580	35.99
01BK003	Nepisiguit River @ Nepisiguit Falls	712	1921-73	May 28, 1961	18,500	Apr. 29	18,700	-	-	-	-
01BK004	Nepisiguit River near Pabineau Falls	807	1957-73	May 28, 1961	24,500	Apr. 30	19,700	Apr. 29	2317	23,000	28.50
01BL001	Bass River @ Bass River	67.6	1965-73	Feb. 5, 1970	2,050	Apr. 30	972	Apr. 30	0330	1,130	16.72
01BL002	Southwest Caraquet River @ Burnsville	66.8	1969-73	Apr. 22, 1971	1,660	Apr. 29	1,010	Apr. 29	2035	1,200	17.96
01BL003	Tracadie River @ Murchy Bridge Crossing	148	1970-73	Apr. 22, 1971	2,960	Apr. 30	2,020	Apr. 30	0346	2,120	14.32
01BQ007	Tomogonops River @ the Mouth	60.9	1971-73	May 19, 1972	1,450	Apr. 29	3,130	Apr. 29	0921	4,320	70.94
01BQ001	Northwest Miramichi River @ Trout Brook	366	1961-73	Feb. 4, 1970	17,200	Apr. 29	13,700	Apr. 29	1439	17,000	46.45
01BP001	Little Southwest Miramichi River @ Lyttleton	518	1951-73	May 28, 1961	25,600	Apr. 29	18,000	Apr. 29	1115	21,700	41.89
01BO002	Renous River @ McGraw Brook	236	1965-73	Feb. 4, 1970	11,300	Apr. 29	10,800	Apr. 29	1122	12,800	54.24
01BO001	Southwest Miramichi River @ Blackville	1,950	1918-33 1938-39 1961-73	May 1, 1923	70,000	Apr. 30	77,200	Apr. 29	2219	98,700	50.62
01BO003	Barnaby River below Semiwagan River	187	1972-73	-	-	Apr. 19	3,010	Apr. 30	0029	3,310	17.70
Southeastern Basins											
01BR001	Kouchibouguac River @ Acadieville	68.3	1930-33 1969-73	Feb. 4, 1970	1,860	Apr. 19	972	Apr. 19	0231	1,080	15.81
01BS001	Coal Branch River @ Beersville	64.2	1964-73	May 13, 1967	2,120	Apr. 18	867	Apr. 18	2119	1,030	16.04
01BU002	Petitcodiac River near Petitcodiac	151	1961-73	Apr. 2, 1962	7,400	Apr. 19	962	Apr. 24	1905	1,050	6.95

Summary of Peak Discharges at Stream Gauging Stations in New Brunswick, Quebec and Maine (Continued)

Station Number	Station Name	Drainage Area (sq. mi.)	Period of Record	Maximum Daily Mean Discharge prior to 1973		Maximum Daily Mean Discharge 1973		Maximum Instantaneous Discharge 1973			
				Date	Discharge (cfs)	Date	Discharge (cfs)	Date	Time*	Discharge (cfs)	Unit Discharge (cfs/sq.mi.)
01BU003	Turtle Creek @ Turtle Creek	49.9	1962-73	Nov. 9, 1963	2,710	Apr. 19	535	Apr. 24	1524	607	12.16
01BU004	Palmer Creek near Dorchester	13.2	1966-73	Nov. 10, 1972	797	Apr. 24	152	Apr. 24	1510	233	17.65
01BV007	Upper Salmon River near Alma	67.0	1967-73	May 16, 1972	5,410	Apr. 29	1,520	Apr. 29	0823	2,430	36.27
01BV006	Point Wolf River @ Fundy National Park	50.3	1964-73	May 16, 1972	4,150	Apr. 29	1,700	Apr. 29	0626	3,370	67.00
01BV008	Big Salmon River near St. Martins	111	1970-73	May 16, 1972	4,960	Apr. 29	3,310	Apr. 29	0513	5,760	51.89
Southwestern Basins											
01AQ001	Lepreau River @ Lepreau	92.1	1916-73	Apr. 30, 1923	12,000	Apr. 29	2,640	Apr. 29	1339	3,050	33.12
01AQ002	Magaguadavic River @ Elmcroft	547	1971-73	Feb. 4, 1970	25,500	Apr. 30	11,900	Apr. 29	2027	13,400	24.50
01AR008	Bocabec River above tide	16.6	1966-73	Feb. 4, 1970	612	Apr. 29	642	Apr. 29	0345	968	58.31
01AR012	Chamcook River @ Little Chamcook Lake Outlet	4.4	1968-73	Feb. 5, 1970	60.9	Apr. 30	50.8	Apr. 30	0226	53.3	12.11
01AR011	Forest City Stream below Forest City	138	1968-73	May 19, 1970	1,160	May 4	821	May 3	1630	826	5.99
01AR004	St. Croix River @ Vanceboro	417	1928-73	May 31, 1961	4,930	Apr. 29	5,800	Apr. 29	1300	6,040	14.48
190	Grand Lake Stream @ Grand Lake Stream	224	1928-73	June 13, 1952	2,780	May 4	1,960	May 3	1700	8.75	8.84
01AR003	St. Croix River near Baileyville	1,320	1919-73	May 1, 1923	22,900	Apr. 30	18,700	Apr. 30	1730	19,000	14.39
01AR006	Dennis Stream near St. Stephen	44.2	1966-73	Feb. 4, 1970	2,300	Apr. 29	1,260	Apr. 29	403	1,480	33.48

* Time given is Atlantic Standard Time

(E) Estimated

Damages: The total economic cost of the flood was estimated to be $11.9 million. Of this, $10.8 million was attributed to the Saint John River Basin, about $1.0 million to the river basins in northeastern New Brunswick and less that $0.1 million to the southwestern basins. In terms of economic sectors, the Public Sector sustained the highest cost of $4.9 million, followed by the Personal Sector with $4.2 million, the Business Sector with $1.7 million, the Agricultural sector with $0.7 million and the Organizational Sector with $0.3 million. Compensation was provided by the federal and provincial governments to the extent of 63 percent of the estimated total economic cost in the Province. The federal share of this compensation was about $5.3 million.

Damages in the Fredericton area and in the agricultural lands a few miles downstream of Fredericton accounted for about 60 percent of the total economic cost of the flood.

During the 1973 flood, forecasting and emergency measures activities were successful in avoiding more serious personal hardship and greater economic losses. Warning provided, through weather and streamflow forecasting, permitted some advance planning to react to the emergency, while the Emergency Measures Organization directed the disaster activities. In spite of this, the flood caused an estimated $2.5 million in damage to moveable property.

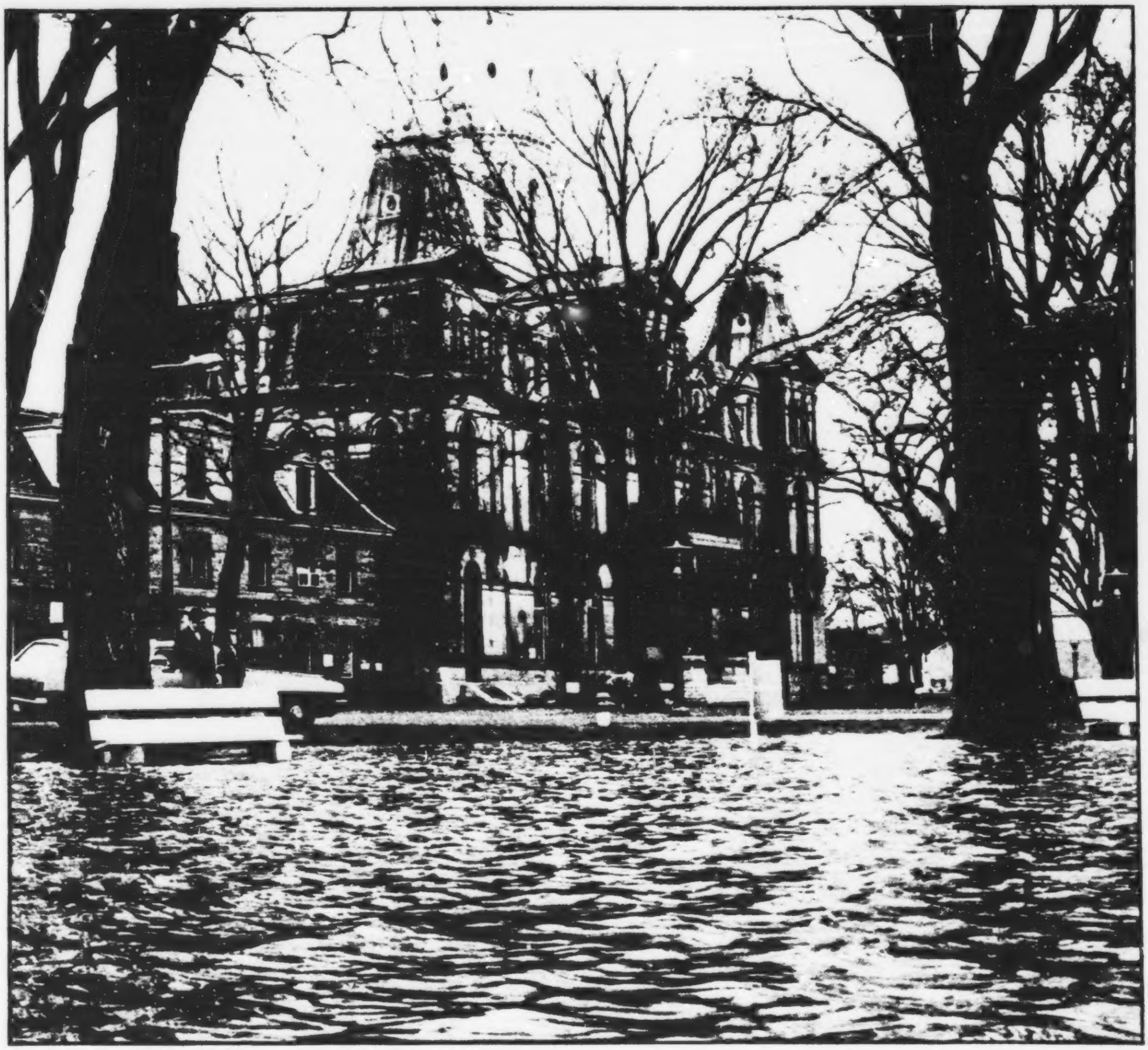
Estimated Economic Cost and Compensation by Region

Region	Total Economic Cost	Total Compensation
Saint John River	$10,777,117	$6,632,142
Southwestern New Brunswick	56,865	52,386
Northeastern New Brunswick	1,043,025	743,077
TOTAL	$11,877,007	$7,427,605

Economic Cost by Sectors

Sector	Total Direct	Total Indirect	Total Economic Cost	Total Compensation
Agriculture	$ 670,785	$ 67,205	$ 737,990	$ 737,990
Business	1,588,,062	151,151	1,739,213	503,980
Organization	296,705	1,712	298,417	134,129
Personal	4,186,987	----	4,186,987	1,991,467
Public	4,150,858	783,542	4,914,400	4,060,039
TOTALS	$10,893,397	$983,610	$11,877,007	$7,427,605

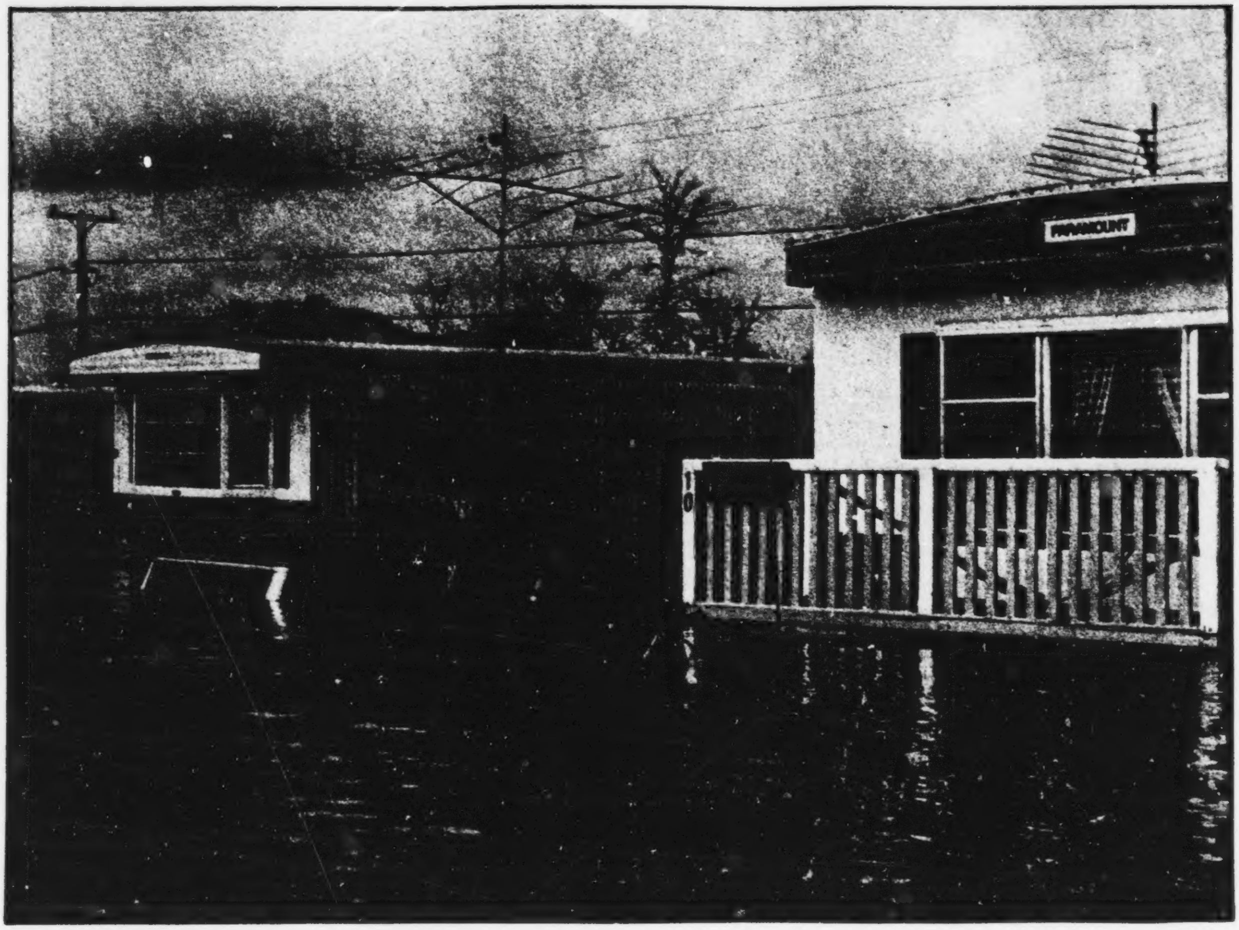
Photograph 22



Legislative building, Fredericton prior to peak stage,
April 29, 1973

Photo Credit: Joe Stone Photo Studio

Photograph 23



Flooding of mobile homes in trailer court southeast of Fredericton, April 30, 1973

Photo Credit: Joe Stone Photo Studio

Flood Frequency Analysis for Selected Stations in New Brunswick, Quebec and Maine (Ref. 14)

Station No.	Description	Period of Record Analysed	Discharge (cfs)		Maximum Daily Mean Discharge April 15-May 20, 1973	
			$Q_{2.33}$	Q_{50}	Discharge (cfs)	Recurrence Interval (yrs.)
0100	Saint John River at Ninemile Bridge	1951-1973	21,632	39,683	29,800	8.5
0105	Saint John River at Dickey	1947-1973	44,381	88,270	66,800	10
0110	Allagash River near Allagash	1932-1973	14,462	28,513	27,200	37
01AD003	St. Francis River at Outlet of Glasier Lake	1952-1973	7,130	14,972	11,600	12.5
0135	Fish River near Fort Kent	1930-1973	8,424	16,097	15,600	40
01AD002	Saint John River at Fort Kent	1927-1973	80,933	156,196	130,000	16
011702	Madawaska River 1.9 mi. downstream from Lake Temiscouata Dam	1923-1973	8,795	15,938	13,100	14.0
01AF003	Green River near Rivière Verte	1963-1973	7,825	17,968	11,800	7.4
01AF002	Saint John River at Grand Falls	1931-1973	115,172	234,856	213,000	28
0165	Machias River near Ashland	1952-1973	6,221	14,025	10,700	13
0170	Aroostook River at Washburn	1931-1973	22,779	45,852	42,400	32
01AH002	Tobique River at Riley Brook	1955-1973	9,114	19,793	16,500	18
01AH003	Tobique River at Plaster Rock	1955-1973	14,495	31,466	27,100	22
01AJ001	Saint John River at East Florenceville	1952-1973	152,299	351,596	324,000	32
0179	Marley Brook near Ludlow	1964-1973	46	81	47	2.5
0180	Meduxnekeag River near Houlton	1941-1973	3,301	6,652	5,650	19
01AK001	Shogomoc Stream near Trans-Canada Hwy.	1944-1973	1,464	2,848	2,770	42
01AK004	Saint John River below Mactaquac*	1919-1973	192,191	366,964	393,000	84
01AL002	Nashwaak River at Durham Bridge	1962-1973	12,206	28,516	23,500	18.4
01AM001	Northwest Oromocto River at Tracy	1963-1973	5,388	11,550	10,200	25
01AP002	Canaan River at East Canaan	1963-1973	5,110	11,300	1,690	1.01
01AP004	Kennebecasis River at Apohaqui	1962-1973	8,737	20,748	3,030	1.05
01BC001	Restigouche River below Kedgwick River	1963-1973	22,814	51,315	39,400	12.5
01BE001	Upsalquitch River at Upsalquitch	1944-1973	13,489	29,578	22,600	12.2
01BJ001	Tetagouche River near West Bathurst	1952-1973	3,320	8,096	3,590	2.7
01BK003	Nepisiquit River at Nepisiquit Falls	1921-1973	9,478	17,950	18,700	60
01BK004	Nepisiquit River near Pabineau Falls	1958-1973	13,677	29,845	19,700	6.7
01BQ001	Northwest Miramichi River at Trout Brook	1962-1973	7,242	16,819	13,700	17
01BP001	Little Southwest Miramichi River at Lyttleton	1952-1973	10,664	25,086	18,000	10
01BO001	Southwest Miramichi River at Blackville	1962-1973	32,128	69,746	77,200	100
01BU002	Petitcodiac River near Petitcodiac	1962-1973	4,026	9,464	962	1.01
01BU003	Turtle Creek at Turtle Creek	1963-1973	1,534	3,710	535	1.14
01AQ001	Lepreau River at Lepreau	1917-1973	2,791	6,119	2,640	2.15
01AQ002	Magaguadavic River at Elmcroft	1944-1973	9,591	18,166	11,900	4.9

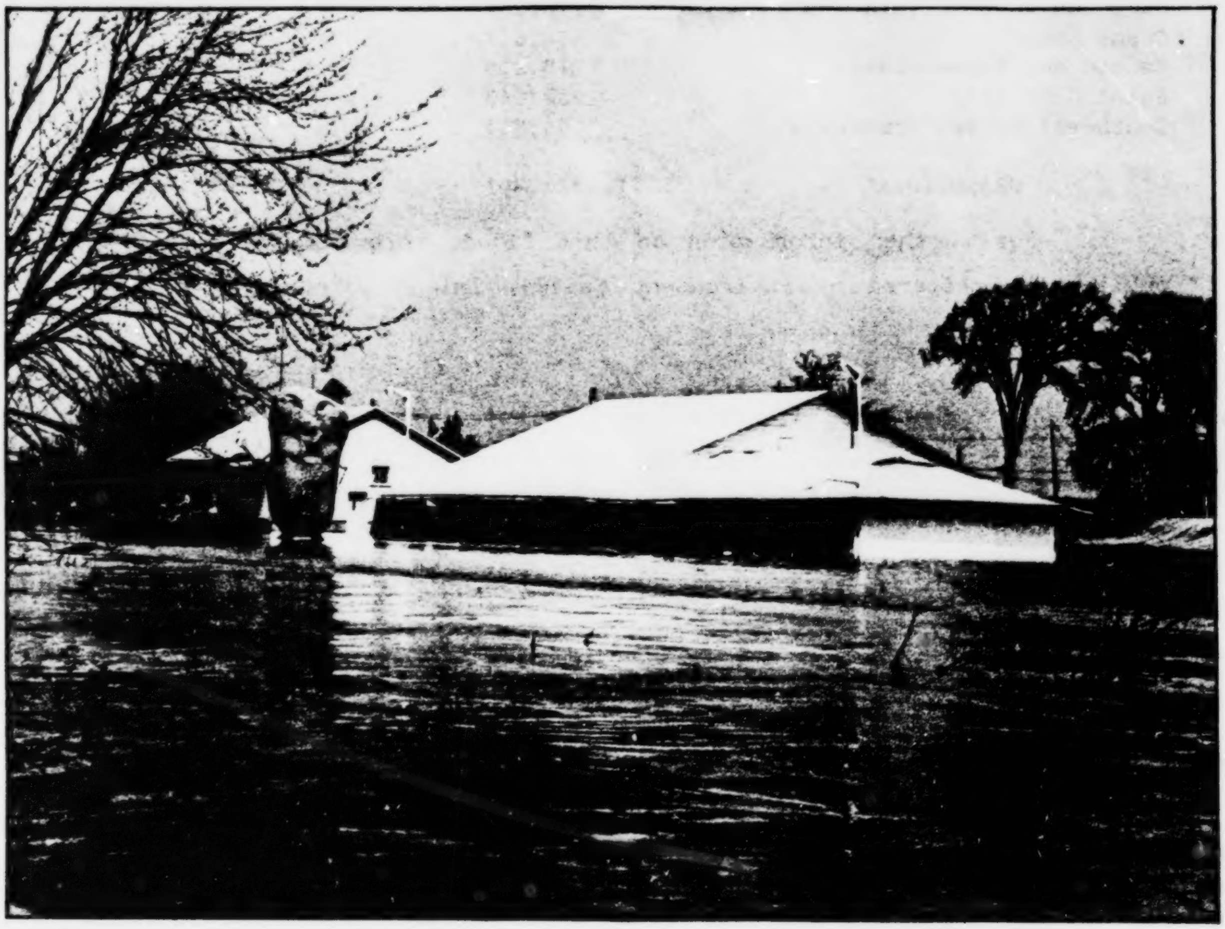
* Includes adjusted values from Pokiok for period 1919 to 1966

Summary of Storage Data for Reservoirs in Saint John, St. Croix and other New Brunswick Drainage Basins
March 30 to May 4, 1973 (Ref. 14)

Reservoir	Stream	Basin	Nominal Live Storage 1000	Maximum Live Storage in 1973		Live Storage in 1973 (1000 ac-ft)							
			ac-ft	1000 ac-ft	Date	Mar.30	Apr.6	Apr.13	Apr.20	Apr.27	Apr.29	May1	May4
Saint John Basin													
Temiscouata Lake*	Madawaska River	Saint John	105.0	154.2	May 7	33.6	33.6	33.6	59.8	135.4	138.6	139.6	139.6
Millinocket Lake*	Aroostook River	Saint John	23.1	25.5	May 16	8.1	9.2	9.9	12.2	21.5	24.0	24.7	24.0
Squapan Lake	Aroostook River	Saint John	58.6	66.1	May 15	24.6	28.1	30.5	35.2	48.6	55.1	57.4	59.8
Trousers Lake	Tobique River	Saint John	36.6	36.6	May 15	8.8	8.8	8.8	9.9	17.2	20.5	23.8	28.5
Long Lake	Tobique River	Saint John	28.3	29.0	May 17	8.8	9.3	11.0	11.9	15.8	17.8	19.5	22.1
Sisson Reservoir	Tobique River	Saint John	97.0	93.9	May 25	25.2	24.2	20.4	17.5	38.8	50.4	61.1	71.8
Serpentine Lake	Tobique River	Saint John	25.6	75.6	May 21	5.9	6.6	7.2	7.9	11.5	13.0	14.8	17.2
Total for Saint John River Basin			374.2			115.0	119.8	121.4	154.4	288.8	319.4	340.9	363.0
Southwestern Basins													
East Grand Lake	St. Croix (East)	St. Croix	105.3	103.0	May 7	71.6	71.6	69.5	72.6	90.6	96.9	100.0	101.1
Spednic Lake	St. Croix (East)	St. Croix	187.1	195.0	Apr. 30	167.8	168.4	168.4	177.7	192.7	194.6	194.6	189
Sysladobsis Lake	Grand Lake Stream	St. Croix	24.9	-	-	-	-	-	-	-	-	-	-
West Grand Lake	Grand Lake Stream	St. Croix	160.7	165.0	May 1	-	-	-	136.0	138.5	151.0	165.0	162.0
Grand Falls at Baileyville	St. Croix	St. Croix	88.0	98.6	Apr. 30	73.0	79.2	71.3	77.4	73.9	88.0	95.0	78.3
Loch Alva	East Musquash River	East Musquash	30.0	30.0	May 25	6.6	9.9	13.2	16.5	22.5	21.3	21.3	22.8
Seven Mile Lake	West Musquash River	West Musquash	10.0	8.6	May 24	3.4	3.9	4.4	5.0	5.0	5.8	6.2	6.5
Log Falls Reservoir	West Musquash River	West Musquash	22.0	22.0	Apr. 16	21.6	20.5	22.0	22.0	15.6	19.8	22.0	22.0

* Reservoir consists of natural lake with stoplog controlled outlet

Photograph 24



Flooding in Maugerville area, April 30, 1973

Photo Credit: Joe Stone Photo Studio

Economic Cost and Compensation by Area

Area	Total Economic Cost	Total Compensation
Northern New Brunswick	$ 590,257	$ 513,226
Miramichi River Basin	452,768	229,851
Upper Saint John River	1,426,602	769,205
Middle Saint John River	941,192	561,521
Greater Fredericton Area	5,167,607	3,192,482
Maugerville-Sheffield	1,942,633	1,631,508
Oromocto River Basin	204,654	166,005
Gagetown to Westfield	48,634	39,472
Grand Lake	534,637	88,224
Canaan and Kennebecasis	278,215	93,203
Saint John City	232,943	89,822
Southwestern New Brunswick	56,865	52,386
GRAND TOTAL	$11,877,007	$7,427,605

For further information on this flood, refer to the following publication prepared by Environment Canada, Inland Waters Directorate, Atlantic Region:

New Brunswick Flood, April - May, 1973
Technical Bulletin No. 81

Flood of May 21 - 22, 1973

Cause: Heavy rainfall.

Description: Heavy rainfall over the Victoria Day weekend caused increases in river levels.

The Nashwaak River was reported to be up by two feet at Marysville, and several of the flats along the upper reaches of the river were under water.

No other reports of over the bank flooding were recorded.

Magnitude: The heaviest rainfall was reported at Saint John where 2.62 inches were recorded. A rainfall of 1.44 inches at Fredericton, and 1.46 inches at Houlton, Maine, were also reported. River levels at the Fredericton Pumping Station were reported to be up 2.4 feet in 24 hours.

Damages: No damage was reported.

Flood of July 3 - 4, 1973

Cause: Series of thunderstorms and torrential rains.

Description: Along the Trans Canada Highway from Woodstock north, cultivated potato fields were eroded, and in several places, culverts were blocked allowing water to run over the road. During the storm, traffic was reported to be at a standstill on the Trans Canada.

Northern Carleton County was reported to be the hardest hit area. In West Florenceville, damage was heavy as culverts could not cope with the heavy runoff. Two houses and a mobile home were reported as being inundated. The west end of the Florenceville bridge was cut off by water and another road in the area was washed out. Electrical service was disrupted in the area for several hours as a pole had been washed out and other shortages occurred.

Magnitude: About two inches of rain was reported to have fallen in about a one-half hour period.

Damages: No estimates of the damage caused by the "flash" flooding were reported.

Flood of August 5, 1973

Cause: Heavy rains.

Description: Heavy rains brought flooded basements and road washouts to the Moncton area.

The reports estimate that between 300 and 500 homes were affected. The reports also indicate that the hardest hit areas were McKay Street, south end of Elmwood Drive and the McAllister Avenue area of Riverview.

The highways garage in Humphrey reported a washout cutting the Salisbury Road about eight miles from the causeway traffic circle. The Coverdale highway garage reported "seven or eight" washouts.

In northern New Brunswick, heavy rains were reported but no major flooding problems occurred.

Magnitude: The flood was reported to be the second such event in the past month.

The Moncton Airport Weather Office reported "1.64 inches of rain between 8:00 a.m. and 3:00 p.m., Sunday, August 5, bringing the total rainfall for the last five days to 5.24 inches."

The water was reported to be "waist high on both sides of McKay and on the southern Elmwood Drive convent property."

Damages: The damage was reported as "extensive to furniture, carpeting, furnaces, etc. and unknown structural damages probably have occurred."

The Salisbury Road washout was described as being over 20 feet wide.

Flood of December 20 - 22, 1973

Cause: High winds and rain resulting in some ice jams. Over two inches of rain and temperatures above 50° F.

Description: In southwestern New Brunswick, most of the damage was as a result of the wind. Power failures, fallen trees, and a few flooded basements in the Elm Street area of St. Stephen.

In northern New Brunswick, rivers swelled as a result of the rain. The damages resulting in northern New Brunswick were considered to be light.

In the Restigouche River Basin, six families were isolated at Wyers Brook by flood waters.

In the Saint John River Basin, an ice jam occurred three miles south of Perth-Andover and in these communities, water reached the back doors of some homes near the river.

An extensive ice jam occurred on the Aroostook River at Fort Fairfield, Maine. Damage was largely confined to flooded basements through back-up of the storm sewers. Access to the Town's garage was blocked and the C.P.R. tracks to Aroostook Junction, N. B., was inundated. Three families in the area were evacuated from their homes by boat.

Several families in Washburn, Maine, were also evacuated from their homes as a result of an ice jam.

Magnitude: No estimates or data on magnitude was reported in the newspapers.

Damage: The flood damage in Maine was estimated to be in the order of $40,000.

Flood of January 19 - 24, 1974

Cause: An ice jam.

Description: An ice jam on the Matapedia River at Routhierville, Quebec, sent water and ice over a three mile section of Route #6, closing it to traffic for at least five days.

Magnitude: No information was presented.

Damages: No information was presented.

Flood of February 20, 1974

About 1.5 inches of rainfall caused local flooding along Rothesay Avenue, Saint John. No flooding resulted along Marsh Creek.

Flood of February 23, 1974

Cause: Heavy rain.

Description: For the second time in a week, heavy rains caused flooding in the Saint John area.

A number of homes, both in Saint John East and in the Rodney Street district of Saint John West, experienced flooding problems.

Rothesay Avenue was inundated between Russell Street and McAllister Drive, and Fairville Boulevard was closed from Manawagonish Road to Kierstead Drive. The hollow between Manawagonish Road intersection and Kierstead Drive was said to be inundated to a depth of three feet.

Magnitude: The Saint John Weather Office reported the precipitation to be 1.46 inches. The reason for the widespread flooding in comparison to February 20 is not known. However, it may have been due partially to the effect of the tidal cycle on Marsh Creek.

Damages: No description or estimates of damage were available.

Flood of March 5, 1974

Cause: Heavy rainfall.

Description: A heavy rainfall resulted in the overflow of a pond located on the grounds of the Moncton Golf and Country Club resulting in flood damages to several homes on Berkley Drive, Riverview.

Magnitude: One home was reported to have had at least eight inches of storm water and sewage in the basement.

Damages: One home was reported to have had $10,000 damages as estimated by the owners. A flood in December, 1973, of the same proportion was avoided because of corrective measures taken before any real damage occurred.

Flood of April 29 - May 18, 1974

Cause: Flooding occurred along the Saint John and Restigouche River systems. Heavy rains coinciding with the spring runoff and in some areas, worsened by ice jams.

Description: Flooding began on April 29, in the Upper Saint John River Basin; ice jams occurred particularly in the western part of Madawaska County. Major streams involved were the Saint John, St. Francis, Little, Tobique and Madawaska Rivers as well as Baker and Trout Brooks. A number of roads and bridges in the area received damage, but it was relatively light. The most seriously damaged bridge was the Arthurette Bridge on the Tobique River. Some of the towns and villages affected in this area were: Connors, St. François, Pelletier Siding, Caron Brook, Clair, Arthurette and Baker Brook. Ice blockages on Green River resulted in the loss of several cottages. An ice jam also occurred on the Saint John River at Fort Kent.

Flooding in central New Brunswick began May 1. Flooding was mainly due to the Saint John River, but there was also some flooding along the Keswick, Nashwaak, Tay, Oromocto and Jemseg Rivers. The major area affected was along the Saint John from Mactaquac, through Fredericton to Maugerville and Sheffield.

In Restigouche County, flooding occurred along Wyers Brook, the Upsalquitch, Matapedia and Restigouche Rivers. Low lying areas around Wyers Brook and along the Restigouche River from Robinsonville to Campbellton were inundated. The Wyers Brook Road and River Road between Robinsonville and the Matapedia Bridge were closed, and a number of families in this area had to be evacuated.

At Runnymede and Moores Settlement, homes were damaged by ice and families were evacuated. Some livestock was reported to be lost in the vicinity of these communities. Homes were also vacated in the Dawsonville and Mann Mountain Settlement areas. The Church of England, Dawsonville, was damaged extensively as well as homes and outbuildings.

At Matapedia, Quebec, schools were closed and about eight families were evacuated from their homes. Adam's Store and the Restigouche Motel were heavily damaged. The flooding of the Matapedia

River in Quebec also had some effect on the Flatlands area of New Brunswick.

At Flatlands, a number of buildings were damaged and several homes near the old Fish Hatchery were evacuated when an ice jam occurred just east of the village.

A major ice jam occurred on the Restigouche River at the old Interprovincial Bridge near Campbellton. At Sillarsville, Quebec, ice damage to C.N.R. tracks was reported to be quite severe. A trailer park at Cross Point, Quebec, was inundated. The ice breaker Tupper alleviated some of the problem when it cut a path in the river up to the Cross Point-Campbellton Bridge.

At Campbellton, Walker Brook overflowed, washing out a culvert in the St. Albert's area, and minor damage resulted to properties in this area.

In Val d'Amour, a footbridge was washed out. Damage in this area was relatively minor.

Magnitude: The maximum daily mean discharge for the Saint John River at Edmunston was 123,000 cfs on May 3. The maximum daily mean discharge, for the Saint John River below Mactaquac, was 287,000 cfs on May 2.

The daily mean discharge for the Restigouche River above Rafting Ground Brook was 46,000B cfs on May 2 with a maximum daily mean discharge of 64,200 cfs on May 14.

Damages: At Campbellton, approximately $5,000 in damage was claimed by residents of Val d'Amour Road and Gerrard Street areas.

A report, prepared by the Department of Public Works (Canada), contained the following estimates of damage to the Public Sector:

SUMMARY OF RESTORATION COSTS TO THE PUBLIC SECTOR

Department	Cost of Restoration
Supply and Services	$ NIL
Education	200
Tourism	35,000
Highways	290,400
TOTAL	$325,600

SUMMARY OF RESTORATION COST TO HIGHWAYS AND BRIDGES

AREA	HIGHWAYS	BRIDGES
Restigouche County	$ 58,000	$ ----
York County	24,200	----
Carleton County	28,000	----
Madawaska County	12,000	9,500
Victoria County	8,200	35,000
Queens and Sunbury Counties	115,500	----
TOTALS	$245,900	$ 44,500

Flood of November 13 - 14, 1974

Cause: Unusually high tides and winds.

Description: A combination of unusually high tides and high winds caused some flooding of wharves and low lying areas in Restigouche County.

At Eel River Bay, a section of Route #11 was inundated and a plow was required to clear the pavement of debris.

In Campbellton, an area adjacent to the Interprovincial Bridge was inundated. Wharves along the shoreline and the retaining walls of the Riverview Park were battered by the high waves. Cribbing along shorefront properties of Ramsay Street was damaged.

Magnitude: A spokesman for the meteorological office at Charlottetown Airport stated: "the unusual circumstances were produced by winds in the vicinity of 40 miles per hour and tides five or six feet above the average high tide mark."

Damages: No estimates of damage were given in the newspaper accounts, however, a spokesman for the Campbellton Detachment of the R.C.M.P. said "some damage is possible."

Records of the provincial Emergency Measures Organization indicate that in 1976, approximately a dozen residents of Ramsay Street received compensation totalling $14,310 for crib repair resulting from this storm.

Flood of November 27 - 28, 1974

Cause: High tides and rainfall.

Description: Highwater was reported on both the Newcastle and Chatham waterfronts.

In Newcastle, water inundated the dump road and the causeway which connects Ritchie Wharf with the Waterfront Parking Lot.

In Nelson-Miramichi, reports of erosion were received.

In Loggieville, one-half of the causeway leading to Middle Island Provincial Park was washed away and about 1200 feet of railway line at the Old Ferry Landing was flooded, halting freight traffic.

Magnitude: The tide heights were reported to have reached levels of about six feet above predicted levels.

Damages: The Department of Public Works described the storm as having "accelerated the rate of erosion" in the Nelson-Miramichi area.

Flood of December 9 - 10, 1974

Cause: Rain, mild temperatures, resulting in ice jams.

Description: At Saint John, a record rainfall of 3.35 inches was reported. Storm sewers were unable to cope with the high runoff. Flooding was reported to have occurred along Rothesay Avenue, Fairville Boulevard (the Golden Mile) as well as portions of McLaren Boulevard, Taylor Avenue, Sandy Point Road and Thorne Avenue. Numerous basements were flooded. An area of approximately 125 acres was inundated in Glen Falls.

Some secondary roads in the Gagetown area were reported to be flooded and no serious flooding problems were experienced at Fredericton.

An ice jam, at Nashwaak Village, caused water to back up over the intersection of Route #8 and the Killarney Road about 5 p.m. on the 9th. The grocery store was inundated as well as the basement of a nearby home. The ice jam was reported to have broken around 9:00 p.m. and the Department of Highways crews cleared the ice from the highway shortly thereafter.

In the Chatham-Newcastle area, many drainage problems were encountered. Flooded basements were reported on McIntosh Street, Riverside Drive and Duke Street.

In Chelmsford, one mile west of Nelson-Miramichi, one family was forced to evacuate their home when it became surrounded by water. This incident was blamed on an inadequate culvert.

Magnitude: At Nashwaak Village, the store owned by Austin Clayton was reported to be inundated to a depth of eight inches. The nearby home of Mr. James MacFarlane was reported to be surrounded by water and the basement was flooded to a depth of about three feet.

Damages: In Nashwaak Village, at the Clayton's Store, stock and some equipment were moved upstairs thus averting losses and ice had severed a water line leading to the MacFarlane's residence. No estimates of the damage were reported.

Flood of May 7 - 8, 1975

Cause: Spring freshet.

Description: Some people in low lying areas suffered minor flooding.

Magnitude: The Saint John River at Fredericton peaked at 19.7 feet on May 8. The levels were considerably lower than the 24 feet reached in 1974 and the disasterous 1973 mark of 28.6 feet.

Damages: No estimates or description of the minor flooding were recorded.

Flood of November 14 - 17, 1975

Cause: A record 6.52 inches of rain, which was the greatest 24 hour rainfall ever recorded at Saint John.

Description: Clogged sewers and drainage ditches backed up water onto streets and roads. Basement flooding was reported in several area. Areas of the City hardest hit by flooding included the Marsh Creek area, Mystery Lake Road, the Golden Mile, Red Head Road, Golden Grove, Black River Road and the Lorneville area where one bridge was weakened. Rothesay and Thorne Avenues, as well as McAllister Drive and other streets, were also affected. Some other roads which were closed are Ashburn Lake Road and Foster Thurston Drive as far as Drury Cove.

Business establishments and homes were flooded and two schools were forced to close. Telephone services to about 200 residences of Glen Falls were disrupted "due to cable problems" resulting from flooding, and several homes were evacuated by work crews or firemen using water craft. A Rothesay Avenue Motel was flooded as well as several travel trailers at a trailer sales company.

Magnitude: At Mystery Lake Dam, 18 inches of storage was built up. At Marsh Creek, during high tide, this area is "eight feet below sea level". In the Glen Falls area, an estimated 400 acres was said to be inundated.

Damages: No accurate account of how many people had to evacuate their homes because of the flooding was available. A partial assessment of the damages to homes and roads was in the order of $500,000 to $700,000. This flood may be described as the worst ever in Saint John.

Flood of December 10 - 11, 1975

Cause: Heavy rainfall.

Description: The heavy rains washed out a small section of the C.N.R. roadbed between Amherst, N. S. and Moncton. Buses were used to transport passengers around the washout.

Magnitude: No information was presented.

Damages: No information was presented.

Flood of January 27 - 28, 1976

Cause: January thaw, caused by mild temperatures, rain and resulting ice jams causing a back up of water.

Description: An ice jam in the Oromocto River caused widespread flooding at Hoyt, isolating several farms in the area and inundating barns.

Several ice jams occurred in the Kennebecasis River causing flooding along Trout Creek in the Sussex area. Several roads, fields and most interval lands were inundated. Near Sussex Corner, approximately 26 families were flooded out of their homes when an ice jam formed at the Sussex Corner bridge. Most of these families were located in Brown's Trailer Park on the west side of Trout Creek. The other homes affected were located on Cunningham Avenue. Parson's Brook spilled over its banks on Upper Main Street, flooding the fields and encircling several properties.

At Saint John, many basements were flooded because of blocked drainage systems. Works Department crews and fire department employees were busy pumping out basements and clearing storm drains. On Rothesay Avenue, the worst flooding occurred near Medjucks Furniture and Appliances Limited. Other flooded portions were near the Ponderosa Steak House and Deluxe French Fries. Some flooding was also reported in Fairvale. The Old Hampton Road was flooded in certain locations and one of the worst sections was at East Riverside. Flooding in Glen Falls was only in specified areas. The worst problems were on Brown Street, Ashburn Lake Road and Glen Road. Only one family was reported to have evacuated their home.

Some basement flooding was reported in the Riverview area of Moncton.

Magnitude: A rainfall of at least 66.5 millimeters (2.62 inches) was recorded at Saint John.

Near Ashburn Lake, Marsh Creek was at a level that was within six inches of the bridge.

Damages: No estimates or detailed description of the damage were reported by the newspapers.

Flood of February 2 - 3, 1976

Cause: Hurricane force winds and torrential rains.

Description: The storm was reported to have inflicted widespread damage to buildings, power and telephone lines and other structures, resulting in loss of livestock and disruption of transportation throughout the Province.

In the Grand Manan area, high seas destroyed at least five fishing vessels, weirs and thousands of lobster traps.

At Black's Harbour, the high seas were responsible for flooding of wharves and buildings.

At Black Bay, hundreds of lobsters in a lobster pound were lost as well as a number of traps when the wharf collapsed under the high seas.

At Sussex, flooding affected many homes and business premises' basements. However, the chief damage to buildings and other types of property was caused by the high winds.

In Carleton, Victoria and Madawaska Counties, water from overflowing highway culverts flooded many streets and highways. In Perth-Andover, several basements were flooded.

In Newcastle, several basements were flooded.

In Campbellton, over 12 inches of water was reported covering some city streets. One huge lake was reported on Water Street in front of McRae's Ltd. Numerous basements were also affected.

In Bathurst, numerous flooded basements were reported.

Magnitude: No information was presented in the newspaper accounts. The flooded streets in Campbellton was attributed to the lack of adequate drainage due to blocked storm drains.

Damages: Damage across the Province was unofficially tabulated in the millions of dollars range. The damage was mainly the result of the hurricane force winds that reached between 50 and 60 miles per hour.

Flood of March 31 - April 5, 1976

Cause: Rain, mild temperatures, snowmelt and ice jams.

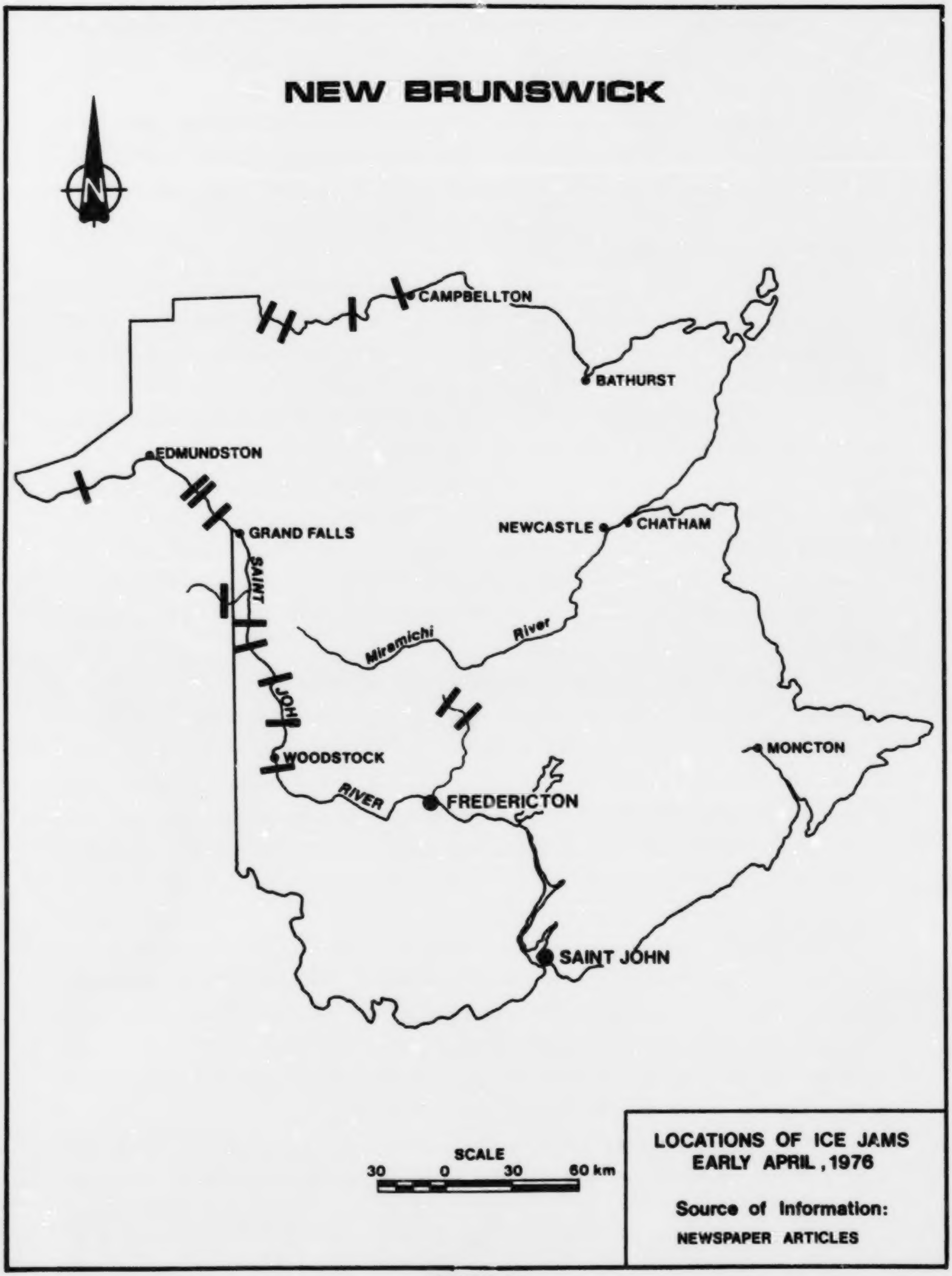
Description: Widespread flooding was reported along the Saint John River and its tributaries from just south of Woodstock, north to Madawaska County, and in the Restigouche River Basin.

The New Brunswick Electric Power Commission reported widespread damage to poles and transformer installations along many of the Province's rivers. In the Grafton area, a 12,000 volt line crossing the river was lost and their Branch Office suffered ice and water damage. In the northern part of the Province, one of two high voltage interconnecting lines with Hydro Quebec was severely damaged by ice on April 4, and another was in danger from shifting ice in the Restigouche River.

C.P.R. rail, freight and passenger services were interrupted at several locations. The 105 mile line linking McAdam and Aroostook was closed because of a washout at Wytopitlock, 44 miles west of McAdam. At Woodstock, the railway bridge at the mouth of the Meduxnekeag River was destroyed by high water and ice. Near Bath, a freight train was derailed as a result of a washout, killing the brakeman. Rail lines were also inundated at other locations and some structures were threatened.

In the Nashwaak River Basin, ice jams were reported near Nashwaak Bridge and Marysville on April 3. The one at Marysville was reported as not having posed any problems. However, near Nashwaak Bridge, a section of Route #107 was blocked by water and ice. The road shoulder was reported to be washed out. Armstrong Road near Stanley was reported to be inundated and an unconfirmed report stated that "the bridge between Route #8 and Stanley was washed out."

At Bull's Creek, south of Woodstock, the junction of the River Road and the Trans Canada Highway was reported to be inundated. A nearby


NEW BRUNSWICK
N
CAMPBELLTON
BATHURST
EDMUNDSTON
GRAND FALLS
NEWCASTLE
CHATHAM
SAINT
JOHN
RIVER
Miramichi
River
WOODSTOCK
FREDERICTON
MONCTON
SAINT JOHN
SCALE
30
0
30
60 km

LOCATIONS OF ICE JAMS
EARLY APRIL, 1976

Source of Information:
NEWSPAPER ARTICLES

FIGURE 20

home and business were said to be inundated, destroying thousand of dollars worth of antiques, 12 snowmobiles, a truck and accessories.

At Woodstock, the high water and ice were reported to have taken their toll. Along Water Street, utility poles were smashed, leaving the power and phone lines in a tangled state, houses and businesses were inundated and damaged by ice. Heavy losses to goods and furnaces were reported. Basement flooding was reported at Feere's, Newnham and Slipp's pharmacies, the Regional Library office on King Street, the Coffee Shop, Monteith Motors and the Provincial Government offices in the Feldman Building.

At Centennial Park, the boathouse and light poles were destroyed, and the pool and its buildings were inundated. The Centennial Fountain was swept away along with playground equipment. The old General Daries body shop was surrounded by water, the Frozen Food Lockers and Stewart's warehouse were heavily damaged by water and ice. The Curling Club was reported to be inundated and/or damaged by water and ice.

A 10 inch water main on the underside of the highway bridge was destroyed by ice. The army and local residents supplied water to those who were without.

An ice jam at the Grafton Bridge, just north of Woodstock, caused a seven foot difference in river level between there and one mile downstream. Several houses in the Grafton area were surrounded by water, and ice was reported over a portion of Route #105.

A mud slide was reported to have partially blocked Route #105 near Northampton. At Pembroke, a quarter mile section of railway was inundated and rail cars were set on the bridge for weight.

At Hartland, a state of emergency was declared as high water and ice damaged the pumping station and polluted the drinking water. The problems began with an ice jam occurring on March 31 about a mile downstream of the town, and extending upstream of the Hugh John Flemming Bridge. The ice jam broke on April 1 leaving extensive water and ice damage. Approximately 20 properties received flood damages, which included businesses and residences along Main Street. About 12 persons were evacuated to a nearby motel. As a result of the water supply problems, the schools were forced to close. The Simmonds Road between Florenceville and Hartland was reported to be covered with water and ice for a while during the night of March 31. The Hartland Clothing and

Hartland Furniture Stores reported extensive damage to stock in the basements, and the United Baptist Church was inundated. The town engineer was reported as having evacuated his home and his garage was said to have been overturned by ice and water.

Ice was also reported to be piled up under the rail and highway bridges crossing the Becaguimec River. Route #105 from Bath to Perth-Andover was inundated and traffic was said to be re-routed through Maine. Route #125, Perth to Tobique; Route #106,from the Trans Canada Highway to Andover; and the road connecting Route #125 and New Denmark were all reported to be impassable. In Perth-Andover, several streets were inundated and "massive" ponds were formed behind residential areas as a result of a four mile long ice jam on the Saint John River. A "state of emergency" was declared when it became necessary to evacuate the Hôtel Dieu Hospital. Approximately 200 homes experienced basement flooding to some extent, and 20 homes were reported to be completely cut off by flood waters. Approximately 400 people were evacuated. Many of the town's businesses were reported to have flooded basements and several vehicles were inundated. A ten-unit low rental senior citizen's complex was reported to be heavily damaged and surrounded by water. The Junior High School was reported to have the ground floor inundated (the depth of water was reported to be at least knee deep). Some concern was expressed over the rail bridge and the C.P.R. had moved 17 gondola cars, loaded with wood chips, on to the bridge to add weight.

On April 3, an ice jam on the Aroostook River backed water up onto the streets of downtown Fort Fairfield, Maine, for about an hour. The ice jam broke and the water receded quickly. Flooding was also reported at Washburn, Maine. On April 5, evacuees began returning to their residences in Perth-Andover while ice jams still existed upstream.

An ice jam at Ste. Anne-de-Madawaska caused flooding of the Trans Canada Highway. A 17 year old youth was reported drowned when the car he was driving went into a flooded ditch. The bridge crossing the Quisibis River was reported to be under two feet of water, and, on April 4, two families and 30 head of cattle were evacuated from the area.

The ice ran out of the Upsalquitch, Restigouche and Matapedia Rivers and ice jams formed, forcing water to back up and overflow the banks.

Photograph 25

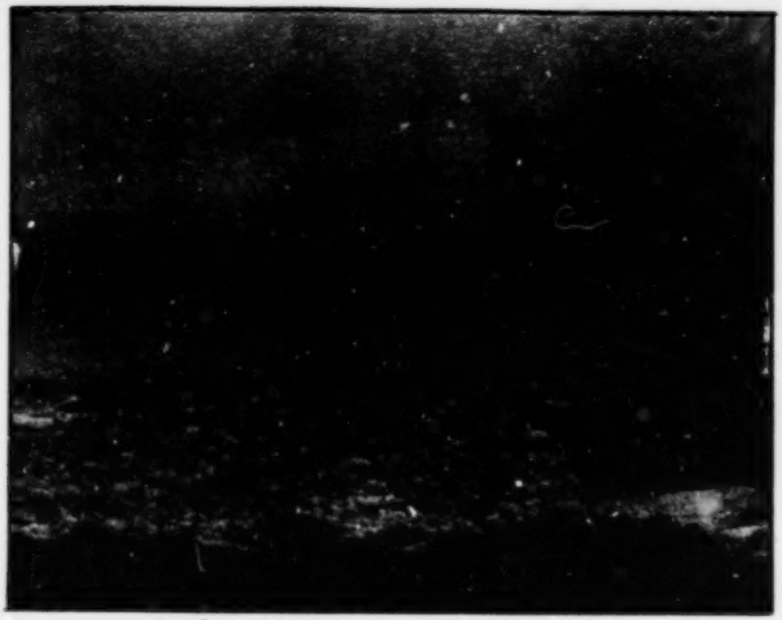
Tomlinson Residence, North of Railroad Bridge,
Perth-Andover, April 4, 1976 at 7:30 a.m.

Photograph 26

Upstream from west end of Railroad Bridge,
Perth-Andover, April 2, 1976 at 4:50 p.m.

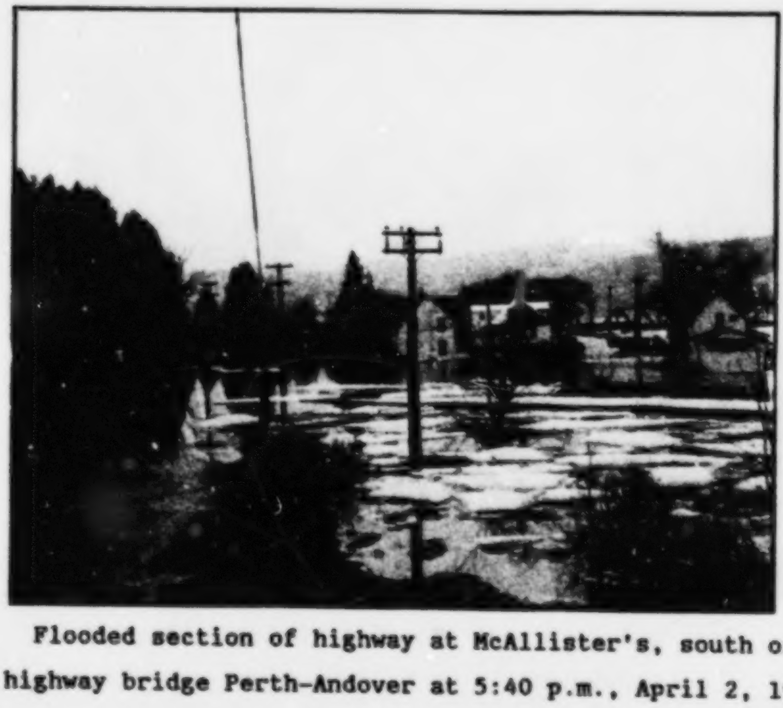
Photo Credit: N.B. Electric Power Commission

Photograph 27



A view across the Beechwood Headpond, Perth-Andover, April 2, 1976 at 4:00 p.m.

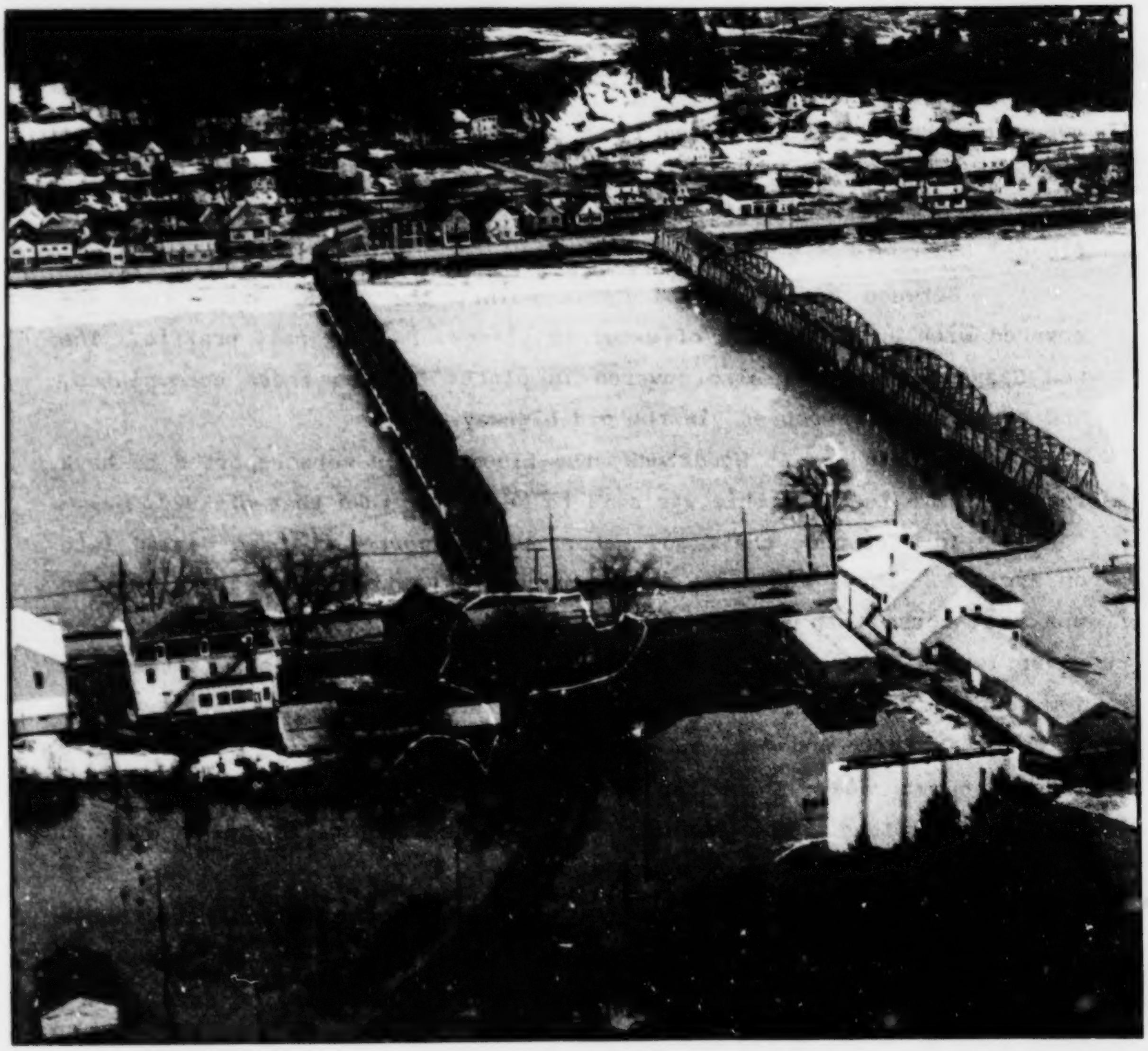
Photograph 28



Flooded section of highway at McAllister's, south of highway bridge Perth-Andover at 5:40 p.m., April 2, 1976.

Photo Credit: N.B. Electric Power Commission

Photograph 29



Flooding in a portion of Perth-Andover, April 4, 1976

Photo Credit: N.B. Provincial Archives

The ice jam at Routhierville, Quebec, resulted in seven feet of water over the highway at one point in time on April 1. Ice jams also built up above and below Matapedia at Mann's Settlement, and below the new interprovincial bridge at Matapedia. Extensive flooding resulted in Matapedia and Flatlands.

In Matapedia, the hotel, service station and Poirier's Store were closed due to the flood conditions. Schools were closed because of the flooded highways and difficulties in bussing students. A section of road from Poirier's Store to the bridge across the Matapedia River was completely under water. At least one home was severely damaged by moving ice. Several others were abandoned because of impending dangers and flooded basements.

Between Matapedia and Cross Point, the C.N.R. Gaspé line was covered with up to 10 feet of water in places, halting rail traffic. The new Gaspé Highway was also covered in places between these communities, and traffic was re-routed via the old highway.

Magnitude: At Woodstock, the flood levels were reported to have reached 142.6 feet and this was said to be higher than that of 1923.

In Hartland, the flood waters were reported to have peaked late on April 1. Local residents were reported as saying "that the situation was much worse than in 1967 when a similar ice jam had developed." The river levels were reported to have raised 10 to 12 feet in a matter of a few hours as the ice jammed at Sproule Island.

At Perth-Andover, the river was reported to reach levels higher than ever recorded. The water was said to be three feet higher than the 1974 spring flood. The ice was estimated to have piled up to over 20 feet before letting go under the pressure.

In Matapedia, the flooding was said "to be extensive although not nearly as bad as in 1974."

Damages: The estimated flood damages on the Saint John River, from just south of Woodstock to Green River, was expected to total more than $4 million.

In Woodstock, about "a dozen homes and businesses had actual flood damages." The C.P.R. bridge was destroyed on April 2 and reconstruction was estimated to cost $700,000. The new structure was built four feet higher than the old one, and five of the seven washed out spans from the old bridge were reused.

In Hartland, a new well for the water supply was begun in February 1977, to prevent a recurrence of the contamination due to flooding. The total claim for flood damages was $28,000 which included $25,000 for the ice damage to the town's pumphouse. The town end of the covered bridge was reported to have dropped 12 inches. There were no damage estimates published in the newspapers for Perth-Andover. The senior citizens complex, which was reported to be heavily damaged, was opened in the fall of 1975.

Two lives were lost as a result of the flooding.

A report prepared by the Department of Public Works (Canada) contained the following estimates of damage to the Public Sector:

SUMMARY OF RESTORATION COSTS

Department	Cost of Restoration
Transportation	$262,070
Municipal Affairs	130,380
Health (Hospital Services)	58,950
Supply & Services	22,480
Education	12,920
TOTAL	$486,800

SUMMARY OF RESTORATION COSTS TO HIGHWAYS AND BRIDGES

Area	Restoration Costs
District 7 - Carleton County	$ 29,585
District 10 - Madawaska County	17,035
District 11 - Victoria County	215,450
TOTAL	$262,070

SUMMARY OF RESTORATION COSTS TO MUNICIPAL PROPERTY

Restoration Costs	Restoration Costs
Village de Riviere - Verte	$ 4,015
Village de Ste. Anne de Madawaska	7,795
Perth-Andover	13,270
Hartland	10,130
Woodstock	95,170
TOTAL	$130,380

SUMMARY OF RESTORATION COSTS TO HOSPITAL SERVICES (Dept. of Health)

Location	Restoration Costs
St. Joseph's Hospital (Hôtel Dieu) Perth-Andover	$58,950
TOTAL	$58,950

SUMMARY OF RESTORATION COSTS TO DEPT. OF SUPPLY & SERVICES

Location	Restoration Costs
Perth-Andover	$ 6,250
Woodstock	16,230
TOTAL	$22,480

SUMMARY OF RESTORATION COSTS TO DEPARTMENT OF EDUCATION (SCHOOLS)

Name and Location	Restoration Costs
Perth Junior High School, Perth	$12,410
South Victoria High School, Andover	510
TOTAL	$12,920

In the Restigouche River Basin, the damage on the C.N.R. Gaspé line was expected to be "extensive" due to washouts between Matapedia and Cross Point, Quebec.

Flood of July 24 - 25, 1976

Cause: Heavy rains combined with high tides.

Description: In Saint John, low lying sections of the City experienced flooding because of the heavy rains and high tides resulting in catch basins being unable to handle the volume of water. When the tide went out, the water gradually ran off.

Basement flooding was quite common throughout, and firemen pumped basements on Westmorland Road and Golden Grove Road.

Thorne Avenue and Gilbert Street were reported to be inundated posing a problem to motorists.

Magnitude: Water was reported to have reached depths of two to three feet on parts of Thorne Avenue.

Damages: No estimates of damage were given.

Flood of August 10 - 11, 1976

Cause: Hurricane Belle.

Description: Heavy rain caused water levels of five major rivers in Madawaska County to rise above normal for the time of year.

In Edmundston, private property on the east and west sides of the river had been eroded away, basements were flooded and cracked under hydrostatic pressure. Boulders were reported to have been impeding traffic on several residential streets including Avenues 47 through 40 off Victoria Street.

Water was reported to be covering the Trans Canada Highway near the Wandlyn Motel and one lane near the Power Road Exit was closed for a two hour period.

The flooding was reported as having caused many deep washouts, some over 30 feet in length. Route #14, between Edmundston and St. Basile, was washed out at Iroquois, and in St. Jacques, about 100 feet of the village's main road was washed out along with extensive property damage.

The road between Madawaska and Fort Kent, Maine, was closed for a few hours and damage was said to be extensive.

As a result of the heavy rains in the headwaters of the Kedgwick, Restigouche and Little Main, the Restigouche River rose six feet, two inches at Matapedia according to officials of the Restigouche Salmon Club.

Magnitude: "Unofficial estimates indicated eight inches of rain had fallen when tropical storm Belle passed through the area."

Between August 8 and August 11, Edmundston recorded 178.3 mm (7.0 inches) of rain. Flash flooding occurred during the evening of August 10.

Damages: "A list of the damage compiled by the Provincial Department of Transportation showed most of the damage was in the form of washed out culverts."

Crop damage in Aroostook County, Maine, was estimated at more than $2,150,000.

No serious damage resulted from the high water in Restigouche County although it was reported that a number of canoe docks had been swept away.

A report prepared by the Department of Public Works (Canada) contained the following estimates of damage to the Public Sector:

SUMMARY OF RESTORATION COSTS

Department	Cost of Restoration
Transportation	$112,880
Municipal Affairs	42,050
TOTAL	$154,930

SUMMARY OF RESTORATION COSTS TO HIGHWAYS

Area	Restoration Costs
District 10 - Madawaska County	$112,880
TOTAL	$112,880

SUMMARY OF RESTORATION COSTS TO MUNICIPAL PROPERTY

Municipality	Restoration Costs
Edmundston	$33,100
St. Basile	6,370
St. Jacques	2,580
TOTAL	$42,050

Flood of January 17, 1977

Cause: High tides accompanied by winds and snow.

Description: At Cape Tormantine, high tides pushed by strong winds forced ice and water over the breakwater, inundating the railway spur line and road.

Magnitude: The ice which was forced ashore was estimated to have exceeded 50 tons.

Damages: No description or estimates of damage were presented. Ferry service to Prince Edward Island was cancelled for a period of time.

Flood of March 31 - April 1, 1977

Cause: Showers and thunderstorms.

Description: In Saint John, Thorne Avenue and Rothesay Avenue, between Russell Street and McAllister Drive, were closed to traffic when flooding of some low lying stretches made the streets impassable.

The parking lots of some business establishments on Rothesay Avenue were reported to be "swamped with water".

Flooding was reported to be occurring all over the City and the fire department was pumping out basements in Glen Falls, Loch Lomond and Red Head.

At least one home on Glen Road was evacuated.

Magnitude: Approximately one inch of rain fell in the Saint John area on March 31.

Damages: No estimates or detailed description of damage were presented.

Flood of April 23 - 28, 1977

Cause: Mild temperatures and snowmelt.

Description: The main stem of the Saint John River overflowed its banks in the Fredericton, Lincoln, Maugerville and Sheffield areas, inundating low lying areas.

At Fredericton, the Waterloo Row baseball diamond and the Union Street underpass were reported to be inundated.

At Lincoln, a mobile home park was inundated to a depth of eight inches or more in some places, surrounding approximately 50 mobile homes. The water was reported as not having reached the floors of any of the units.

The Bourque farm was reported to be mostly inundated with the barns, home and silos on dry ground.

In the Maugerville-Sheffield area, several residents were reported to be affected by the highwater and the Trans Canada Highway was closed to traffic. Several sections of the highway were inundated with water and debris.

Magnitude: On April 25, the river had reached an elevation of 23.06 feet at Fredericton and 19.71 feet at Maugerville. The danger points are considered to be 23.0 feet at Fredericton and 19.0 at Maugerville.

Damages: No estimates of damage were presented.

Flood of July, 1977

Cause: Heavy rainfall.

Description: In Sackville, a number of apartments and the Dixie Lee Store on Bridge Street were reported to have been flooded as a result of the heavy rain.

Magnitude: No information on the magnitude was presented.

Damages: The losses were stated to be in the thousands of dollars range and were mainly sustained by the Dixie Lee Store.

Flood of October 1 - 2, 1977

Cause: Heavy rainfall, debris blockage.

Description: Flooding yards, basements and roads plagued eastern areas of Saint John over the two day period. The areas reported to be the hardest hit were Golden Grove, Glen Falls and the Rothesay Avenue district.

Some dirt roads in the Martinon area and to Sproul Road were washed out.

A debris blockage at the Marsh Creek bridge contributed to the flooding in the Glen Falls area.

Magnitude: A spokesman for the weather office reported that a total of 90.2 millimeters of rain fell during the two days. The rainfall included two major falls with a six hour break in between. The rainfall on the 2nd was 58.7 mm which broke the old standard of 41.7 mm set in 1887 for October 2.

Damages: No estimates or detailed description of the damage were presented. However, the general superintendent of operations of the works department was quoted as saying "we had five bad areas out there this time (Glen Falls), while usually we have about 20 bad areas."

Flood of January, 1978

Cause: High tides.

Description: No serious flooding was reported. However, ice was reported to have been thrown onto the marshes at the eastern edges of Sackville.

The railway tracks between Sackville and Aulac were blocked by ice cakes. Work crews were required to clear the tracks before the trains could pass.

Magnitude: No information was presented.

Damages: No estimates were presented on the cost of removing the bockages on the C.N.R. line.

Flood of January 10 - 11, 1978

Cause: Gale force winds, high tides and rain.

Description: Southern New Brunswick was hard hit by gale force winds and high seas. Rising flood waters were reported to have disrupted all modes of travel, cut electrical and telephone services, and in some cases, completely blocked roads.

In the Saint John area, the Courtenay Bay Causeway was closed to traffic because of flooding and the rising waters knocked out about 100 feet of railway track outside of Westfield. The bridge at Welsford was reported to have been washed out. Several downtown streets in Fredericton and Saint John were impassable because of flood waters.

At Alma, the federal government wharf collapsed and the breakwater was damaged by the high seas and ice. Several basements were also heavily flooded.

Flooding also hit many low lying communities in the Memramcook Valley. The Rocklyn Bridge at Upper Dorchester (nearly 900 feet long) was destroyed. Washouts occurred to the C.N.R. main line at Upper Dorchester and Aulac, disrupting service between Moncton and Nova Scotia.

In the Moncton area, Fox Creek Bridge was inundated by the high water and ice cakes were deposited on the highway. Some businesses adjacent to Hall's Creek, including two major car dealerships (Brunswick Ford Sales Limited and Steeves Pontiac Buick Sales Limited) reported heavy flooding. L.M. Price of Moncton reported heavy losses when water, piled up behind the Peticodiac Causeway, overflowed the banks and onto his fur farm.

In the Sackville area, the Tantramar River overflowed its banks and inundated the C.N.R. Station on Lawrence Street. The overflow on the Tantramar Marsh also covered the Trans Canada Highway forcing closure.

Several schools throughout the area were closed due to the adverse weather conditions. The wind damages to buildings, power and telephone lines, etc., were also described as being very extensive.

Magnitude: At Saint John, the tides were reported to have reached 27.9 feet combined with the winds and rain. The winds were reported to have reached velocities up to 141 kilometres per hour in the Saint John area. The storm was compared to the Ground Hog storm of two years previous when Saint John was declared a disaster area.

Damages: The Rocklyn Bridge, at Upper Dorchester, was described as the second largest covered bridge in the world. The bridge was completely destroyed.

The damages to the breakwater and the costs of replacing the government wharf at Alma was estimated at $250,000.

The losses at the Price farm were reported to be 59 mink and 20 foxes of the 600 mink and 225 foxes kept at the farm. He expected to lose more as a result of pneumonia. The high water also damaged some electrical motors and other farm equipment.

No other estimates of damage were presented.

Flood of January 25 - 28, 1978

Cause: Record temperatures, rain and melting snow resulting in some ice blockages.

Description: Ice jammed twice in the Kennebecasis River (about one-half mile downstream of Sussex) at the bridge where Highways #1 and #2 intersect. Both jams were reported to break up on their own accord before causing any serious flooding.

At Saint John, the Marsh Creek overflow resulted in some of the worst flooding ever in the Glen Falls area.

About 160 basements were inundated and several families were trapped in their homes. A number of streets in the area were closed, such as: McAllister Drive between Rothesay Avenue and the Parkway Mall; Ashburn Lake Road at Rothesay Avenue; and Drury Cove Road near the MacKay Highway interchange.

The Glen Falls and Brown's Flat schools were closed because of major flooding problems resulting in school buses not being able to make their normal runs.

Rothesay Avenue businesses also had flood damages, and customers were not able to reach others because of the flood waters.

A crane was used intermittently to free ice from Marsh Creek where it flows under Rothesay Avenue. An ice jam was also reported near Strescon.

The Moreland Trailer Park off Rothesay Avenue was inundated with over two feet of water on some of the streets, cutting off the only entrance to the park.

In the Roachville Bridge area of the Kennebecasis River, an ice jam caused some minor flooding. Water was reported to be at floor elevation outside the Liquor Store, and six inches below the top of the foundation at the northwest corner of the Save-Easy Store in west end Sussex.

Minor flooding was reported throughout northeastern New Brunswick.

At Blackville, some flooding was reported to have occurred throughout the village.

In Newcastle, several motorists were stranded by flooding, particularly along the Chapel Island Road.

In Moncton, flooding of basements and several streets were reported. Problem areas included the intersection of Bonaccord and John Streets, and the corner of Main and Lester Streets. Dozens of cars were reported to be stalled because of severe flooding at the Riverview Causeway.

Magnitude: The Saint John Weather Office reported a storm rainfall of 102.2 mm (just over four inches). The rainfall for January 26 was 98.2 mm, breaking the old mark of 41.9 mm set in 1952. Record high temperatures for the date were also recorded with 12.3°C compared to the previous high of 8°C set in 1950. The all-time January record for rain was also broken. It was 84.8 mm set on January 6, 1909.

The parking lot of Ziebart Auto-Truck Rustproofing Limited, Rothesay Avenue, was reported to be covered with 14 inches of water.

At Moncton, 55.2 millimetres of rain was reported.

Damages: No estimates of the damage were presented in the newspaper accounts.

Flood of May 8 - 11, 1978

Cause: Annual freshet.

Description: Minor flooding was reported throughout Maugerville and Sheffield, downstream of Fredericton. The high water was reported as playing havoc with spring planting.

Magnitude: The Saint John River was reported to be at 18.8 feet on May 9 and was expected to reach an elevation of 21 feet on May 11.

Damages: No estimates or description of damage were reported.

Flood of January 3, 1979

Cause: Heavy rains, mild temperatures and some ice jams.

Description: In the Sussex area, the low lying areas were inundated and numerous basements were flooded. Ice jams were reported upstream of both bridges in the Roachville area, causing some flooding.

The roads in the vicinity of Lower Millstream were closed due to flooding.

Magnitude: The ice jams and flooding in the Roachville area was said to be of less than 24 hour duration.

Damages: No information was presented.

Flood of January 8 - 9, 1979

Cause: Rain, melting snow and ice.

Description: In Saint John, flooded streets and basements resulted from the storm.

Three streets were closed to traffic because of the flooding and firemen were called to about 40 homes to pump basements. The Keirstead Trailer Park was turned into one large pool (photo published*).

In the Sussex area, the low lying areas were inundated and numerous basements were flooded.

Minor flooding was reported in the Moncton area and Chatham, mainly due to blocked culverts and manholes.

In Dieppe, the Fox Creek bridge was submerged for three days and some flooding occurred in the Dover Road area. The Rendezvous Beverage Room situated near the bridge was almost flooded when the high water came within a foot of the building. The beverage room was closed for a period of time.

In the Breau Creek area, on the outskirts of Dorchester, Highway #6 was closed when several hundred feet of road was inundated. Fields in the area were also inundated.

At Sackville, three feet of water inundated the main floor of the Enheat Fawcett foundry on the 8th. Employees were given time off until the afternoon of the 9th when most of the water had drained away. Coastal flooding was reported to have occurred in other areas of the Province.

---

* THE MAIL STAR, HALIFAX, NOVA SCOTIA, JANUARY 9, 1979, Pg. 4

Magnitude: The storm was reported to have dumped 80 millimetres of rain on Saint John, and 69.8 millimetres fell at Moncton.

At Sussex, 106.7 millimetres of rain were reported for the first eight days of 1979. This was the second flood event in the Sussex area during the past week.

Damages: No description or estimates of the damage were presented.

Flood of January 29 - 31, 1979

Cause: Record rainfall and high tides.

Description: At least three New Brunswick centres had broken or tied previous rainfall records for the month of January. The rain began on January 25 and carried on throughout January 31.

In Saint John, some streets bordering the harbour, such as Market Slip, were inundated because of the high river levels and tides. A photograph** was published showing the inundation on Market Slip.

In Moncton, the steady rains had caused overflow of catch basins and ditches and inundated basements. A portion of Spruce Street was also reported to be washed out.

In Riverview, several streets were washed out and closed to traffic. Some basement flooding was also reported.

Magnitude: At Fredericton, the total precipitation measured over 142.2 millimetres, breaking the 141 mm mark established for the month of January in 1892. Since January 24, Fredericton received more than 61 mm of rain in this series of storms.

The Moncton Weather Office reported 205 mm of rain for the month, surpassing the previous record of 202.7 mm set in January 1956.

At Saint John, the total rain accumulation for the month hit 240.5 mm. The previous record was 200.2 mm recorded in 1952. The tide level hit 28.1 feet on January 28.

Damages: No description or estimates of the damage were presented.

** EVENING TIMES GLOBE, SAINT JOHN, N. B., JANUARY 30,1979, PAGE 1

Flood of February 26 - 27, 1979

Cause: Rain, melting snow and ice blockages.

Description: In Saint John, widespread flooding was reported following in the wake of a rain storm which dumped 23.8 mm of precipitation during a 12 hour period.

Ice build-ups, which blocked catchbasins, kept works department crews busy trying to clear them. The worst areas included Fairville Boulevard, Manawagonish Road, the Wall Street overpass and Cranston Avenue. Rothesay Avenue and Glen Falls were reported as not being in bad condition.

Magnitude: The storm brought 23.8 millimetres of rain and freezing rain to the area during a 12 hour period with 18 millimetres falling in one six hour period alone.

Damages: No estimates or description of damage were reported.

Flood of March 15 - 16, 1979

Cause: Rain, melting snow and ice jams. Exceptionally high tides were reported at Saint John on the 14th and 15th.

Description: Several areas of southern New Brunswick reported extensive flooding.

Ice jams were reported to have occurred at several locations on the Canaan River.

At Saint John, several people were reported to have been evacuated from their homes as flood waters inundated some streets and basements in low lying areas.

The Kennebecasis River was reported to be the "highest anyone has seen for years" in the Sussex area. A Sussex Corner resident who drove to Saint John reported that "the river flooded throughout the valley".

In Sussex, road washouts were reported on Pleasant Avenue and the parking lot of the Gateway Mall was under water. A number of basements were inundated. At Sussex Corner, the flooding was described as being "somewhat worse than in town".

Magnitude: Approximately 30 millimetres of rain was reported to have fallen.

In Sussex, the water was reported to be level with the Leonard Drive bridge at one point in time. It was also reported that there is normally five feet of clearance between the bridge and the surface of the river.

Tides at Saint John were reported to be 7.88 metres on the 15th and 7.84 metres on the 16th.

Damages: No detailed description or estimates of damage were presented. One person was reported to have lost his life after falling into a flood swollen river near his home in the Saint John area.

Flood of March 26 - April 5, 1979

Cause: Mild temperatures and rain resulting in some ice jams.

Description: In the Saint John River Basin, most of the reported flooding occurred in the southern portion.

At Woodstock, an ice jam formed at the mouth of the Meduxnekeag on March 27, causing a rapid rise in water levels. The highway pedestrian bridge was closed until waters subsided and an inspection could be carried out. The government offices in the Feldman Building were also forced to close due to the high water. Centennial Park was reported to be hard hit by the high water and ice. The ice jam was reported to have moved downstream of the Town to Bull's Creek and the water subsided quickly.

At Fredericton, there were some reports of flooded basements and yards.

At Royal Roads, Nashwaaksis Stream overflowed its banks, inundating the highway and isolating several houses.

Route #105 was reported to be partially washed out at Keswick but still passable.

In the Nashwaak Valley, 12 families at Stanley were evacuated from their homes because of the flooding caused by an ice jam at MacLaggan Bridge, March 26. The fire station was surrounded by water and two trucks had to be removed. Firemen assisted in the evacuation of the families affected, and with pumping operations throughout the community. A section of Route #107, from Stanley to Nashwaak Village, was inundated with water and ice.

At Nashwaak Village, a section of Route #8 was inundated with water and ice floes, and at least one family was isolated. The highway was closed to traffic.

Washouts were reported on the Killarney Road and inundation of Route #8 also occurred between Durham Bridge and Penniac.

South of Fredericton, Route #102, near Lincoln, was closed. A washout was reported on the Lincoln Road near Scott's Nursery. Route #7 was open between Fredericton and Saint John, but some water was reported to be over the highway at various locations.

At Hoyt, a number of homes were inundated and isolated. The Minister of Municipal Affairs was reported as having been forced from his home for "the second time this year as water surrounded his residence." Route #101, Hoyt to Welsford, was reported to be closed because of flooding.

The Trans Canada Highway, from Maugerville to Jemseg, was closed for a period when "the river reached over 19 feet and waves broke over the road and ice piled upon it."

Four rail lines owned by the C.P.R. were reported to be flooded or washed out. The C.P.R. lines affected were: between McAdam and Fredericton Junction; between McAdam and Aroostook; feeder lines from McAdam to St. Stephen and St. Andrews, and; at Westfield Beach.

In the Restigouche River Basin, an ice jam at Tide Head forced closure of roads and at least two families from their homes on March 26. Another ice jam was reported at Flatlands. Highway #132, on the New Brunswick side, and Highway #6, Matapedia to Cross Point, on the Quebec side, were closed. The flooding delayed the C.N.R. Gaspé rail service and forced closure of the pulp mill at Atholville when the pumphouse became submerged. Highway flooding (to a depth of two to three feet) was also reported on Route #134 at Christopher Brook, lasting two days. Numerous cottages along the river were reported to be either destroyed or damaged.

In Gloucester County, an ice jam, on the Millstream River three miles upstream of Beresford, affected nine families.

In the Magaguadavic River Basin, flooding was reported between St. George and Second Falls.* In St. George, the curling club basement was reported to be full of water. A portion of Manor Road was inundatedbetween Brunswick Drive and Route #1, as well as a section of River Avenue near Canal Road.

---

* PROCTOR AND REDFERN LTD., MAY 1979: DOCUMENTATION OF INFORMATION ON THE MARCH 1979 FLOOD ALONG THE MAGAGUADAVIC RIVER SECOND FALLS TO ST. GEORGE.

The Bonny River Road was reported to be inundated at several locations, and at Second Falls, flooding was reported near the church. At Bonny River, at least 25 families were forced to leave their homes.

Magnitude: The flooding in the Restigouche River Basin was reported as being "the worst in memory." In Atholville, an area, several kilometres long and more than 0.8 kilometres inland at some points, was inundated. The ice run on the Restigouche River was believed to be the earliest in recorded history. The older residents stated that "the earliest ice had ever run, prior to this year, was in 1936 when it ran out on March 27.

At St. George, the power plant foremen reported the high water level to be at elevation 62.2 feet (18.96 m) and that all the stoplogs were removed from the dam at the crest of the flood.

Damages: No estimates of damage were presented other than some damages to public property which are as follows:

Department of Highways - (Highways and Structures)	$1,930,133
Department of Municipal Affairs - (Municipal Services and Buildings)	$ 143,195

Damages along the waterfront in Woodstock were reported to have exceeded $40,000. At Centennial Park, several guard rails and posts were destroyed by the ice movement.

Flood of April 24 - May 7, 1979

Cause: During the latter part of April and the early part of May, extreme flood conditions occurred in most parts of the Province. These conditions were caused by rainfall combined with heavy snowmelt.

Description: During the winter of 1978-79, snowfall was about average throughout New Brunswick and in adjacent areas of Maine. However, above average snowfall was observed in northeastern New Brunswick and Quebec. The water equivalent of the snow pack at the end of April was slightly above normal in northern New Brunswick, and about 50% of normal in the southern portion of the Province.

During the period of April 24 to May 7, mean temperatures were well above 0°C. On April 29, a storm system moved into Maine, Quebec and western New Brunswick resulting in precipitation varying from 10 to 22 millimetres in the northern part of the Saint John River Basin. Daily precipitation as high as 52.5 mm was reported at Bon Accord in north-central New Brunswick. Further rain occurred on April 30 and May 1, resulting in record breaking discharges at 11 hydrometric stations within the Saint John River Basin. Most rivers crested about April 30 or May 1 and then began to recede. The most seriously affected area of the Province was the flood plain of the lower Saint John River around Fredericton, and in the agricultural lands a few miles downstream of Fredericton.

Ferry service on the lower Saint John River and across the Kennebecasis were suspended at Upper Gagetown, Gagetown, Hampstead, Millidgeville and Gondola Point. The ferry service at Westfield was reduced to one of two because of the high water.

Several major highways throughout the Province and, in particular, the Saint John River Basin, were closed as a result of the flooding for varying periods of time. Some of these were as follows:

Trans Canada Highway at Green River
Route #125 from Salmon River to Grand Falls
Route #125 north of Perth
A section of the Trans Canada Highway from Woodstock to Hartland
Route #105 at Keswick Flats, between Woodstock and Florenceville, and from Bristol to Bath
Route #640 on Hanwell Road
Route #102 at Wilsey Road and Lincoln
Trans Canada Highway from the Princess Margaret Bridge to Jemseg
Route #690, Lakeville Corner to McGowan's Corner
Route #101 between Blissville and Alexander's Mill
Route #112, Coles Island to Salisbury

Water supplies were reported to be contaminated at Grand Falls, St. Leonard, Clair, Green River and Ste. Anne.

At Fort Kent, Maine, the east side of Main Street was inundated forcing 35 families, including the residents of 18 senior citizens units to leave their homes. Several businesses were also affected. Route #1 was closed at Lisle, Maine.

In Madawaska County, the highway at Caron Brook was flooded and a bridge at Baker Brook was reported to be washed out. Some families at Caron Brook, Baker Brook, Green River, Ste. Anne and Siggas were forced to leave their homes. At Edmundston, at least two homes were reported to have water well over the main floor. At Grand Falls, flooding of the sub-station resulted in reduced services to the Fraser Company's mill at Edmundston.

At Hartland, reports of minor flooding were documented.

In the Fredericton area, more than 90 families were forced to leave their homes on April 29, and a "state of emergency" was declared. Some 195 evacuees were reported to have stayed at University of New Brunswick residences while another 133 remained with friends and relatives.

In addition to the blocked highways throughout the area, numerous streets were closed. Some of these are as follows: Riverside Drive, Carmen Drive, Gibson Street, Watters Drive, Union Street Underpass, Burpee Street, Hillcourt Drive, Campbell Street, Carleton at Brunswick Street, McMinniman Drive, McFadzen Lane and Willow Park.

Many basements were flooded throughout the area and flood waters threatened the Lord Beaverbrook Hotel, the York Regional Library and the Beaverbrook Art Gallery.

Two homes in Oromocto West were reported to be surrounded by flood waters.

In Maugerville-Sheffield, all schools were closed for about a week. Some 300 to 400 dairy cattle were evacuated to higher ground. One registered quarter horse was reported to have been lost at Sheffield. The greenhouse operators' losses were reported to be substantial, and erosion to fields was said to be severe. The Trans Canada Highway remained closed until May 7.

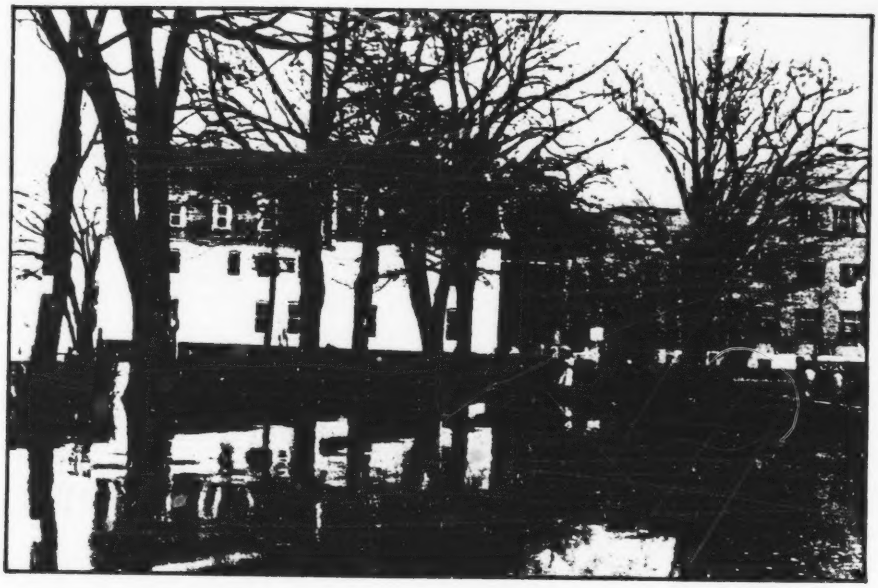
At Gagetown, several basements were flooded as well as all the roads leading to the community.

In the Grand Lake area, as much as four feet of water covered several roads. Numerous cottages were severely flooded.

The Westfield area was reported to be severely affected by the inundation.

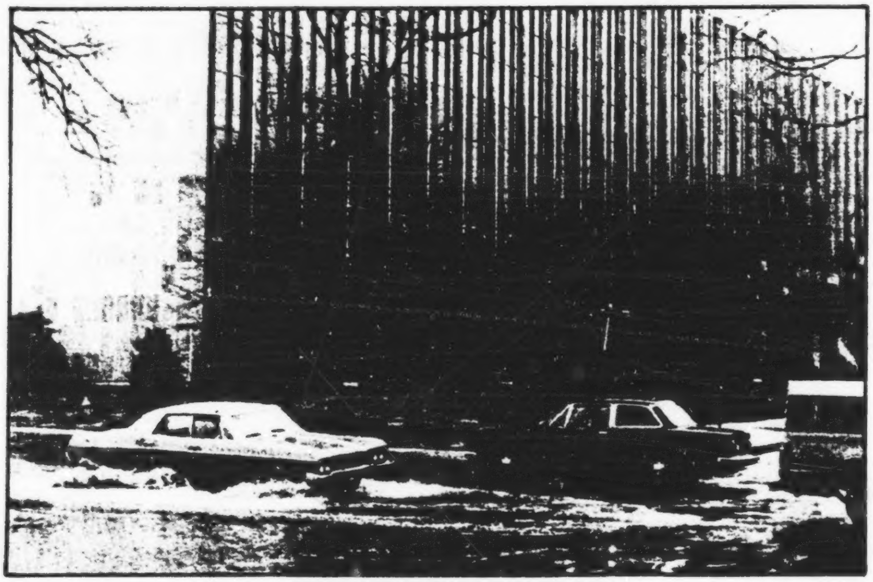
In Saint John, about one-quarter of the South Bay Bridge was submerged as well as the Acamac Beach Road. At Dominion Park, one hundred feet of road was under water, and several basements were flooded. At Indiantown, water was up to the monument in Robertson Square, and some basement flooding was reported.

Photograph 30



Queen's Square, Fredericton, Monday, April 30, 1979 at 3:05 p.m.

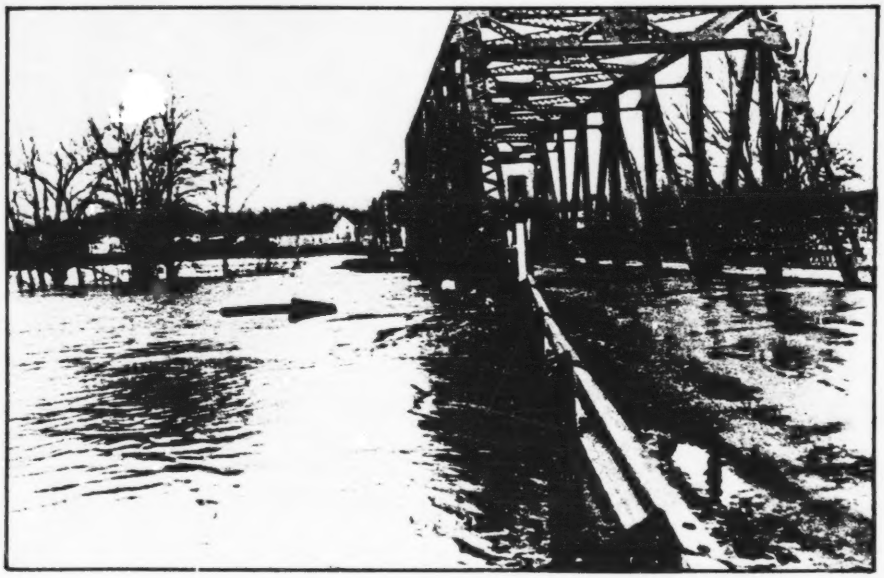
Photograph 31



Centennial Building, Fredericton
Monday, April 30, 1979, at 3:30 p.m.

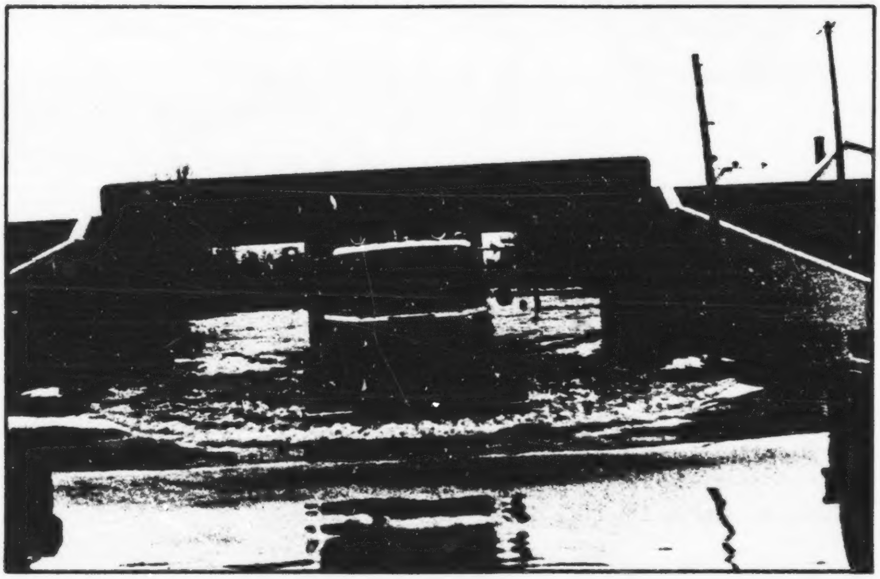
Photo Credit: Environment New Brunswick

Photograph 32



Lakeville Corner Bridges, water level is almost at bridge deck, May 1, 1979, at 10:40 a.m.

Photograph 33



Devon Underpass on the north side of the Saint John River at Fredericton, May 1, 1979, at 1:00 p.m.

Photo Credit: Envirnment New Brunswick

At Millidgeville, water rose to within a few feet beyond the gate of the Royal Kennebecasis Yacht Club, and was reported to be lapping the side of the road at one point on Kennebecasis Drive.

In Restigouche County, minor flooding was reported to have occurred in several areas of Campbellton. Road shoulders and culvert erosion was reported along Routes #11 and #132. Damages occurred on Gallant Drive where it crosses Walker Brook, and some residences along Val D'Amour Road were affected. Wyers Brook Road was submerged for about one mile of its length on May 1. Reports of flooding at Eel River Crossing were also documented. The flooding also resulted in school closures in Matapedia, Quebec.

Numerous Department of Natural Resources roads throughout the Province sustained damages.

Magnitude: Discharges for this event exceeded maximum of record for four of the five hydrometric stations on the main stem of the Saint John River above and including the gauge at Grand Falls and at hydrometric stations on a number of tributaries to the Saint John River above the Beechwood Dam, including the St. Francis, Green, Grand and Aroostook Rivers. Below the Beechwood Dam, streamflow on tributaries to the Saint John River peaked prior to the end of March. Despite this, streamflow as recorded at hydrometric stations on the main stem of the Saint John River below Beechwood Dam peaked on April 30.

The maximum instantaneous stage recorded at Fredericton was 25.45 feet (8.062 metres) on April 30. At Maugerville, the maximum instantaneous stage of 21.23 feet (6.471 metres) did not occur until May 2. Other water level stations at Jemseg, Newcastle Creek, Oak Point and Saint John were reported to have peaked on May 3.

This flood was the second largest in the Saint John River Basin in terms of peak discharge at the Mactaquac (Pokiok) gauging station, and the fourth largest in terms of stage at Fredericton.

Damages: The newspaper accounts of this flood estimated that the total damages were in the order of $4 million and that between $1.5 and $2 million dollars would be eligible for compensation. More structural damage was reported to have occurred in March when ice jams formed on the rivers than during this flood.

ESTIMATED DAMAGE TO PUBLIC PROPERTY BY DEPARTMENT

Department of Transportation	$960,252
Department of Municipal Affairs	$ 4,233
Department of Natural Resources	$368,208
TOTAL	$1,332,693

For further information on this flood, refer to the following publication prepared by Environment Canada and the New Brunswick Department of the Environment:

The Flood of 1979 Saint John River Basin
New Brunswick
Report T-8101, March 1981

Flood of July 29, 1979

Cause: Heavy precipitation and drainage problems.

Description: In Newcastle, flooding was reported along a portion of the waterfront as the result of drainage problems behind the Stedman's Store on Castle Street.

At Chatham, a plugged catch basin in the parking lot of the Continental Store resulted in floodwaters deep enough for a canoe to pass through.

Magnitude: No information was presented.

Damages: Minimal damage was reported to have occurred at the Chatham Liquor Store.

Flood of September 6 - 7, 1979

Cause: Tropical Storm David.

Description: The tropical storm and high tides caused Hall's Creek to overflow its banks, inundating several streets, homes and businesses in the northeast end of Moncton. About 50 homes were affected on Commercial, Frontenac, Germaine Streets,and Shediac and Lewisville Roads. On Lewisville Road, several businesses, such as Thebeau Body Shop, Steeves Motors Ltd. and Brunswick Ford, suffered losses.

Magnitude: The tropical storm only gave 17 mm of rainfall to the Moncton area. It was accompanied by winds which gusted to 74 km per hour.

Damages: One family had to be evacuated from their home. Damages to homes and businesses, due to the flooding, sewage backup and electrical fires, was said to be approaching the $1,000,000 figure. Some homes were reported to have three to four inches of mud in their basements.

Flood of March 17 - 18, 1980

Cause: Heavy rain.

Description: The provincial Emergency Measures Organization received reports of flooding from Woodstock, Boiestown, Pennfield, Burton, McAdam, Saint John and Fairvale.

At McAdam, some 50 homes were affected by the heavy runoff and basement flooding. An emergency centre had been established for the residents who were evacuated from their homes.

At Grand Bay, a 15 year old youth was drowned in a rain-swollen stream near his home.

In Saint John, many low lying streets were under water including a portion of Rothesay Avenue. The Moreland Trailer Park, off Rothesay Avenue, was reported to be under a metre of water, and some residents decided to leave their homes. Several businesses were also affected by the flood waters.

Many homes, in low lying areas of Quispamsis, Renforth and Rothesay, reported flooded basements.

In Fairvale, a "state of emergency" was declared because of road damage. The intersection of Clark Road and the Gondola Point Road was submerged to a depth of one metre. Portions of Marr Road were also awash. Some basement apartment dwellers decided to leave their accommodations.

In Sussex, flooding of Parson's Brook caused problems for residents on the south side of Main Street.

Magnitude: Problems in the Saint John area were compounded by high winds, frozen ground and unusually high tides of more than nine metres in the Bay of Fundy. Saint John broke a 78 year old record for rainfall on March 18 with 76.4 millimetres of rain recorded. The previous record was set in 1902 with 58.9 mm falling.

Damages: No estimates of damage were presented in the newspaper accounts.

One life was lost due to drowning.

Flood of April 23 - 24, 1980

Cause: Normal spring freshet.

Description: A nine year old youth drowned in the swift flowing waters of Walker Brook after falling in while playing near the brook with a companion.

The parking lot area of Sugarloaf Lodge was also partly inundated.

Magnitude: No information was presented.

Damages: It was reported that "the brook swells during thaw months, and that five children have drowned in the brook over the past 50 years. The other fatalities occurred during the months of April and May in 1944, 1951, 1954 and 1956 (2).

One life was lost.

Flood of February 2, 1981

Cause: Heavy rain and melting snow.

Description: Various sections of Route #105, between Grafton and Hartland, were reported to be covered with water and ice, and one section was washed out at Deep Brook.

Magnitude: No information was presented.

Damages: The washout was reported to be approximately 25 feet wide and 30 feet deep.

The C.P.R. rail line between the road and the river was reported to be blocked with earth in this area.

Flood of February 11 - 13, 1981

Cause: Rain, mild temperatures, melting snow and ice accompanied by high winds. Some ice jams were also reported.

Description: In Fredericton, some flooded basements and pools of water were reported on city streets. The CN-CP railway track to the rear of 204 Lincoln Road was washed out.

In Saint John, an ice blockage at Marsh Creek bridge resulted in flooding of several streets, including McAllister Drive and Rothesay Avenue. Some areas of Glen Falls were reported to be under two to three feet of water and many basements were flooded.

As a result of the winds, the Liberian freighter, "Opal", was forced aground at the mouth of Saint John Harbour.

Flooding of low lying land was reported throughout Kings County. Schools were closed in Districts 18 and 19 because bus routes were being affected by flood waters. Highways were closed in the Lower Millstream-Berwick area, and Smith Creek Road at Salmon River Bridge was also closed for some time. One bridge in the Upper Millstream area was washed out and a second was threatened.

VIA Rail Service was disrupted when the road bed near Nauwigewauk was washed out. A train bridge abutment at Secord Brook, between Apohaqui and Norton, was also washed out.

At Norton, the Norton General Store was isolated by flood waters for a time. A mile of underground telephone cable was also washed out, cutting service to the N. B. Tel customers in the Springfield-Norton area.

At Apohaqui, the Water Survey of Canada gauging station was carried away.

In Sussex, an ice jam on the Kennebecasis River, near Roachville, resulted in flooding along Trout Creek. The Leonard Drive and the Maple Avenue bridges were closed for a time. The most serious flooding was reported to be in the Holman Avenue - Stewart Avenue - McLean Street area where basements were flooded and, in some cases, the water rose to main floor levels. Three homes were evacuated along with residents of a senior citizens complex on Goulding Street. The Gateway Mall parking lot was also inundated.

At Sussex Corner, extensive flooding was reported in Skyline Acres on Campbell Street and Creighton Avenue area, as well as on Meadow Crescent and Cunningham Avenue.

Flooding was also reported in the Dieppe area of Moncton.

Magnitude: At Saint John, 41.6 millimetres of rain were reported with 10^{o}C temperatures, accompanied by winds of 40 kilometres per hour, gusting to 93 kilometres per hour.

Works department personnel described the Glen Falls flooding "as the worst in that area since the infamous Groundhog Day Gale of February, 1976."

The flooding in Sussex was described "as the worst flooding situation in recent years".

Damages: No detailed estimates of damage were made available in the newspaper accounts.

In Sussex, at least one home on Holman Avenue, affected by the flooding, was left on a partially collapsed foundation.

The problem on the CN-CP railway track behind No. 204 Lincoln Road, Fredericton, was said to have been a recurring one since 1960.

Flood of February 24 - 27, 1981

Cause: Rain, unseasonable temperatures and ice jams.

Description: An ice jam was reported to be located near Aroostook, about 50 kilometres west of Florenceville. The ice jam was reported to be about three miles in length.

In the Hartland area, three ice jams resulted in rising river levels and flooding in the low lying areas.

One ice jam was located west of the town, above the Hugh John Flemming Bridge, causing flooding in the area of Buckwheat Creek. The highway (Route #105) was closed to traffic when the road was inundated with 0.6 metres of water and ice. A portion of the road was washed out in this area. At least four East Florenceville families were forced to evacuate their homes due to flood waters.

Another jam occurred at the Hugh John Flemming Bridge, while the third jam had formed at the lower end of Sproll's Island (near Nixon Siding). The old McMullin Flat at the south end of Hartland was flooded with ice lying on the back lawns of houses in that area.

The ice jams at Buckwheat Creek and Hugh John Flemming Bridge were reported to have broken on their own.

Magnitude: The breakup of the river was reported to be "one of the earliest on record".

The main jam in the Hartland area was reported to consist of ice cakes 0.6 metres thick which were piled up to six metres high.

One of the homes, evacuated at East Florenceville, was reported to have about four inches of water over the main floor.

Two spans of the covered bridge were reported to have been destroyed in 1920 when ice jammed and ripped out the old wooden piers. The piers were then replaced with concrete piers.

Damages: One home was reported to have damages exceeding $10,000.

Flood of August 5 - 7, 1981

Cause: Heavy rain.

Description: A severe rain storm resulted in excessive amounts of precipitation in the Upper Saint John River Basin, generally ranging from 75 to 262 mm. Thundershowers were reported to be frequent in the southern portion of the Province.

No reports of inundations have been collected, but localized flooding is suspected.

Magnitude: Excessive rainfall amounts were recorded at St. Eleuthere (67 mm), St. Pamphile (109 mm), Edmundston (114 mm) and St. Perpetue (262 mm), most of which fell on August 6. Fredericton and Quebec City reported 24 hour rainfall amounts of 32 mm and 50 mm respectively for August 5.

Water levels on the Saint John River rose 4.5 metres in less than 24 hours at a point 20 kilometres upstream of Edmundston. A rise of 2.5 metres in less than 12 hours was recorded at Fredericton.

Damages: No description or estimates of damage were reported.

Flood of August 15 - 16, 1981

Cause: Heavy rainfall accompanied by an electrical storm.

Description: A heavy rainstorm hit the southern portion of the Province resulting in washouts of roads and culverts and flooded basements.

In Saint John, flooding was reported in Glen Falls along Rothesay Avenue and on Old Black River Road. In East Saint John, there was extensive damage to road shoulders and driveways.

The Village of Westfield was reported to be the hardest hit area with washed out roads and culverts, and flooded basements. Most of the damage was reported to be on Mallard Drive, La Croix Drive, MacLean Road, Backland Road and Sunnyside Drive. The CN-CP railway line on the Saint John River Road at Westfield Crescent was extensively eroded.

No major damage was reported in other parts of the Province.

Magnitude: Rainfall of 43.2 and 59 millimetres were recorded respectively at Fredericton and Moncton.

At Saint John, the weather office reported a total rainfall of 136.6 millimetres. The rainfall of 87.4 millimetres on the 16th broke a record of 55.1 millimetres set in 1930. The rainfall for the month had totalled 165.9 millimetres to August 17, whereas the usual amount for the month is 98.8 millimetres. The record for the month is 264.7 millimetres and occurred in 1922.

Damages: The Mayor of Westfield estimated damage at $100,000. The New Brunswick Electric Power Commission reported a number of areas in the Province which experienced power interruptions, and New Brunswick Tel reported that seven exchanges in the southern part of the Province were unable to make long distance calls. The CN-CP railways experienced some delays as a result of the washouts.

Flood of April 27 - May 3, 1982

Cause: Spring Freshet.

Description: The normal spring freshet began with mild temperatures, very little rain and cool nights resulting in only minor flooding and very little damage.

A washout, on the Canadian Pacific Railway line one and one-half miles north of Aroostook Junction, occurred on the 28th resulting in the derailment of two locomotives. The two locomotives came to rest in the Saint John River, 30 to 40 feet below the track and one person was injured. The other cars remained on the track.

At Fredericton, only minor flooding was reported. Precautions had been taken at the Beaverbrook Art Gallery by removing paintings from the basement. The cafeteria and lounge areas of the Legislative Building were shut down and items removed. The Union Street underpass was closed because of flood waters. Flood waters were also reported to cover about one-half of the road at the intersection of Wilsey and Lincoln Roads, and half of Riverside Drive.

A portion of Highway #105 near Tripp Settlement Road at Keswick was partially submerged.

At Lincoln, six families of Willow Trailer Park evacuated their mobile homes while another seven families decided to relocate their mobile homes to another site. Several inches of water covered the access road to the park.

In the Maugerville area, about six inches of water was flowing across a portion of the Trans Canada Highway near Dutch Drive-In but the highway remained passable until the 29th. The highway was then closed when the situation became dangerous due to debris and erosion. It was reopened at about 11:00 a.m. on May 1.

Flooding forced the closure the Highway #670 between McGowan's Corner and Lakeville Corner and the suspension of operations of the Gagetown Ferry.

Magnitude: Flood levels at Willow Trailer Park were reported to be about 23.1 feet on the 28th. At Fredericton and Maugerville, water levels of 23.3 and 20.2 feet respectively were reported on the evening of the 28th. Levels for the 29th were reported as 23.4 and 20.6 feet respectively for Fredericton and Maugeville. Water levels were reported to be 22.8, 20.4 and 16.2 feet respectively for Fredericton, Maugerville and Jemseg on the 30th. By May 2, water levels had dropped to 19.7, 18.6 and 16.1 feet respectively at Fredericton, Maugerville and Jemseg. Water levels continued to decline on the 3rd to 19.4, 18.1 and 16 feet.

Damages: No estimates of damage were presented. A Canadian Pacific repair train was dispatched from Montreal to lift the derailed locomotives from the river and repair the track near Aroostook Junction. The injured operator of the derailed train received a broken pelvis, and the engineer and head-end trainman, who jumped from the train when they saw the washout, received bruises. The C.P.R. constructed a diversion around the washout and trains were running on schedule within a few days.

Flood of January 11 - 12, 1983

Cause: Record temperatures combined with rain causing ice jams.

Description: As a result of the exceptionally mild temperatures and rain, ice jams resulted on the Meduxnekeag River near Woodstock and the Saint John near Hartland.

Only minor localized flooding resulted.

Magnitude: Temperatures reached 14°C at Fredericton and just over 2.5 millimetres of rain was reported to have fallen.

At Beechwood, 34 millimetres of rain were recorded.

Damages: No damages resulted and the rivers and ice jams were being monitored.

Flood of March 21 - 22, 1983

Cause: Mild temperatures, heavy rains, resulting in ice jams.

Description: An ice jam on the Nashwaak River resulting in flooding of Highway #8 at Nashwaak Village, forcing closure of the road. The ice jam cleared itself during the evening of March 22, and the highway was reopened.

Magnitude: About a third of a metre of water was reported to be over Highway #8 at Nashwaak Village.

Damages: No damages were described in the newspaper accounts.

Flood of April 17 - 22, 1983

Cause: High temperature, heavy rain and melting snow, some ice.

Description: At Fort Kent, Maine, river levels increased some six feet, reaching flood stage on April 17. Parts of the town not protected by dykes were reported to be inundated.

The Nashwaak River had risen over a metre on the 17th and resulted in flooding in the vicinity of Nashwaak Bridge. On the 18th, a portion of Route #8 was inundated, but did not reach sufficient levels to force its closure.

Highway #105 near Keswick Flats, was closed on the 19th as several feet of water covered the road along a quarter mile section. This section of highway was reopened on the morning of the 20th.

In Fredericton, high water forced the closure of Union Street underpass, and water was lapping the pavement along the Lincoln Road in the vicinity of Wilsey Road. All low lying areas near the river experienced minor damage such as flooded basements and eroded driveways. Several parking lots in the City were inundated, such as: the Legion Lot on Queen Street, The Lord Beaverbrook Lot and the Municipal Lot on York Street. Sandbagging crews were busy building dykes behind the Lord Beaverbrook Hotel, and Avis Rent-A-Car staff scrambled to remove cars from the hotel's parking lot. By 8:00 a.m. on the 19th, vehicles were reported to be sitting in more than 18 inches of water.

At Maugerville, water was said to be about five inches from the pavement on the Trans Canada Highway near the Dutch Drive-In on the morning of the 19th. By the 20th, a few inches of water was reported over the Trans Canada Highway, but it remained passable.

At Matapedia, the rain-swelled and ice-jammed river flooded a portion of the Village, temporarily tying up traffic and inundating several businesses.

In Flatlands, about 18 inches of water was reported to cover a 100 foot section of Highway #134. Some flooding was also reported at Mann's Mountain.

At Dawsonville, the floodwaters were reported to have caused the collapse of two basement walls supporting St. Paul's Anglican Church.

Magnitude: A water level of about 20 feet was reported at Fredericton on the morning of the 18th.

Water levels of 23.9, 19.2 and 11.2 feet respectively were reported for the 19th at Fredericton, Maugerville and Jemseg.

On the 20th, water levels of 23.7, 19.1 and 12.4 feet were reported for Fredericton, Maugerville and Jemseg respectively. The levels, given for the 21st, were 23.1 and 19.6 feet for Fredericton and Maugerville.

On the 22nd, water levels of 23.0, 19.6 and 13.8 feet were reported for Fredericton, Maugerville and Jemseg.

The last major flooding in the area occurred in 1979 when the Saint John River peaked at 26.4 feet in Fredericton and 21.2 feet at Maugerville.

Damages: At Matapedia, many stores reported water damage. Estimates of this damage were in the order of $300,000. At Dawsonville, a temporary foundation had been erected under the church until a new foundation is built. No damage was reported to the church itself.

Flood of April 25 - 30, 1983

Cause: High river levels and heavy rain.

Description: For the second time in two weeks, the Saint John River in the vicinity of Fredericton overflowed its banks.

The Union Street underpass was closed due to floodwaters on the 27th. Lincoln Road near the Wilsey Road intersection was covered with about six inches of water on the 27th. The water deepened to about one foot by the 28th. Several parking lots in the City were inundated, including the Beaverbrook Hotel parking lot to a depth of two feet in some places, and the Legion lot on Queen Street was under water, stranding several cars in water to the hubcaps.

The Trans Canada Highway was closed to all but some local traffic between Bluebird Corner and Jemseg. The Sheffield and McGowan's Corner areas were reported to be the hardest hit. Ferries at Gagetown and Upper Gagetown were taken out of operation due to flooded access roads.

Route #101 to Rusagonis was covered with water, but reported to be passable with extreme caution.

By April 30, the Trans Canada Highway was reopened to traffic, and ferry service at Gagetown was restored.

Magnitude: The rainfall was reported to be in the order of 50 millimetres.

Water levels of 21.2, 18.6 and 14.9 feet respectively were reported at Fredericton, Maugerville and Jemseg on the 26th. By April 27, water levels reached 23.7 and 20.4 feet respectively at Fredericton and Maugerville. Water levels then began to recede and were reported as 23.3, 20.6 and 16.4 feet on the 28th at Fredericton, Maugerville and Jemseg respectively. On the 29th, the levels reported were 22.7, 20.5 and 16.8 feet at Fredericton, Maugerville and Jemseg, and continued to drop on the 30th to 20.9, 19.4 and 16.7 feet respectively.

Damages: No estimates of damage were reported. There were some reports of basement collapse due to the pressure of flood waters.

Flood of August 2, 1983

Cause: Violent thunderstorm accompanied by lightning and heavy rain.

Description: Minor flooding was reported in the Saint John area in some low lying areas, such as: Loch Lomond Road, Bayside Drive, Rothesay Avenue and Haymarket Square. City work crews were able to clear plugged drains and prevent any serious flooding.

A death occurred from a car/truck collision. The storm was said to have contributed to the accident.

Widespread power outages also occurred leaving some 32,000 customers without service for various lengths of time.

Magnitude: The N.B. Electric Power Commission officials reported the storm as being "the worst electrical storm in five years". About 30 millimetres of rain fell during the storm, including 13.6 millimetres in one five minute period.

Damages: No estimates of damage were presented. Lightning caused minor damage to at least five Saint John area residences during the height of the storm.

Flood of November 25 - 26, 1983

Cause: High winds and heavy rains.

Description: The violent wind and rain storm resulted in widespread power interruptions, cancelled ferry operations in the Maritime Provinces, disrupted some telephone services and resulted in minor flooding of some highways.

Flood warnings were issued for several rivers in the central and southern portions of the Province.

At Marysville, the Killarney Road and River Road were inundated for a period of time and closed to traffic.

In Fredericton, the C.N.R. underpass was flooded and a section of Harron Road (Brookside Drive) was closed when a bridge was washed out.

The Nashwaak River overflowed its banks near Nashwaak Village, inundating a section of Route #8 and other interval land.

No other incidents of flooding were reported.

Magnitude: The New Brunswick Flood Forecast Centre reported that the Saint John River at Fredericton had peaked at five metres. Flooding in the Fredericton area normally begins at 5.1 metres (17 foot mark), with six metres (20 feet) being critical.

A total rainfall of 64.9 millimetres of rain was reported at Fredericton.

Damages: No estimates of damage were presented. However, the majority of the damage would have been wind related.

Flood of February 4 - 6, 1984

Cause: Mild temperatures, heavy rain and melting snow.

Description: The February thaw resulted in minor flooding along the Kennebecasis River. Some streets in Saint John and Fredericton were reported to be inundated as the result of blocked drains. No other reports of flooding were available.

Magnitude: The Kennebecasis River was reported to be about a metre above its normal level as the result of the melting snow and 44.2 millimetres of rain at Saint John.

At Fredericton, 30.2 millimetres of rain followed by 7.20 centimetres of wet snow was reported.

Damages: No damages were reported to have occurred.

Flood of April 16 - 21, 1984

Cause: Mild temperatures, melting snow and ice jams.

Description: In the Restigouche River Basin, the ice on the Upsalquitch River began to run early on the morning of the 16th. This ice jammed at the confluence with the Restigouche and flood waters began to rise. By late on the 17th, the water was reported to be 10 to 12 feet deep on a portion of the highway to Wyers Brook, completely isolating three families. By the 18th, the ice jam moved down the Restigouche and flood waters in this area began to recede. This ice run was reported to have come to a halt at Rafting Ground resulting in the road being inundated to a depth of about six to eight feet.

Another ice jam formed just above the confluence with the Matapedia River and water was reported to be level with the highway in places. However, at about 3:00 p.m. on the 18th, this ice jam moved down river to the Matapedia area.

Another ice jam was reported at the railway bridge in the community of Matapedia, resulting in flooding of the Restigouche Garage, a residence and the basements of several other buildings.

The ice jam in the main river moved downstream on the 20th, the ice at the mouth of the Matapedia River moved out shortly afterwards and the flood waters began to recede.

At Dalhousie, the upper wharf was damaged as a result of the heavy ice buildup.

Magnitude: No definitive information was presented on the magnitude of this event. However, it was reported to be less serious than the 1983 event.

Damages: Authorities estimated the damages at Matapedia to be in the order of $50,000.

Flood of April 25 - May 6, 1984

Cause: Rain, mild temperatures and snowmelt.

Description: Above average snow cover was reported to have existed late in March and early April. The reports for the Saint John River Basin indicated that the water equivalent of this snow cover was 150% above normal, which was the second highest in 25 years of record.

The average water equivalent over the Saint John River Basin was approximately 280 millimetres compared to the long term average of 180 millimetres. The highest water equivalent on record was 320 millimetres in 1963.

The spring runoff was prolonged by low rainfall amounts and cool temperatures during the nights. The Saint John River rose slowly throughout the freshet period. The Saint John River Flood Forecast Centre issued warnings for the lower elevations on Riverside Drive, McMinniman Court and Ross Terrace in Fredericton on April 26. They also advised all residents of low lying areas to take appropriate measures against flood damage. The New Brunswick Department of Transportation and Highway Patrol were monitoring the situation along the Trans Canada Highway through the Maugerville-Sheffield area.

By April 27, no major flooding had been reported. The water levels were reported to be "lapping" the edge of the Trans Canada Highway at Maugerville and nearing homes in the Riverside Drive area of Fredericton.

The Gagetown ferry operations were reduced to daylight hours only due to some flooding on the Jemseg shore.

On April 30, the Trans Canada Highway was still above water in the Maugerville area, however, surrounding farmland was inundated. The rear entrance to the Lord Beaverbrook Hotel in Fredericton was sandbagged as a precautionary measure. A gradual rise in river levels was expected over the next two to three days before peaking.

By May 1, several basements in Fredericton were flooded, the Waterloo Row baseball diamond was submerged as well as the Union Street underpass. The underpass was closed to traffic.

In Maugerville, the Trans Canada Highway was reported to be awash in the Dutch Drive-In area and below Burton Bridge. Several farms were isolated by the floodwaters but no evacuations were reported.

The upper portions of the Saint John River Basin were reported to be 60% clear of snow cover while below Grand Falls, it was all but gone.

On May 2, a section of Route #690, from McGowan's Corner to Lakeville Corner, was closed to traffic as the river continued to rise. A section of the Trans Canada Highway from the Princess Margaret Bridge to Jemseg, was also closed to all but local traffic and transports under the supervision of the New Brunswick Highway Patrol. The remaining traffic was re-routed via Route #10 through Chipman to Young's Cove.

By May 3, the Gagetown Ferry was taken out of service completely. The water levels at Maugerville and Fredericton were reported to have remained constant overnight. Most of the tributaries in the upper portion of the Saint John River Basin had peaked and were reported to be receding. The closures of Route #690 and the Trans Canada Highway were maintained although the flood waters had receded slightly.

Flood conditions for May 4 were reported to be similar to those on the 3rd. A man was reported to have drowned when the car he was driving left a flooded section of Route #690 near Lakeville Corner and plunged into deeper water.

On May 5, the water levels were reported to be receding on a continual basis. The Trans Canada Highway was reopened to traffic, although motorists were cautioned to be on the outlook for debris on the highway. The threat of additional flooding was thought to be over for the spring season.

Magnitude: The following table shows flood stages at several locations on the Saint John River:

Saint John River - Flood Stages 1984*

	Fredericton	Maugerville	Jemseg	Fort Kent
Flood Level**	6.85m/22.5'	6.06m/19.9'	4.97m/16.3'	6.80m/22.3'
April 25	5.89m/19.3'	5.25m/17.2'	4.35m/14.3'	5.00m/16.4'
April 26	6.49m/21.3'	5.67m/18.6'	4.55m/14.9'	5.91m/19.4'
April 27	6.46m/21.2'	5.70m/18.8'	4.60m/15.4'	6.00m/19.7'
April 28	6.46m/21.2'	5.77m/18.9'	4.76m/15.6'	6.12m/20.1'
April 30	6.61m/21.7'	5.95m/19.5'	4.88m/16.0'	6.52m/21.4'
May 1	6.85m/22.5'	6.06m/19.9'	4.97m/16.3'	6.80m/22.3'
May 2	6.99m/22.9'	6.19m/20.3'	5.07m/16.6'	7.08m/23.2'
May 3	7.12m/23.4'	6.28m/20.6'	5.17m/17.0'	6.60m/21.7'
May 4	6.60m/21.7'	6.10m/19.8'	5.20m/17.0'	5.90m/19.3'
May 5	6.56m/21.5'	5.97m/19.6'	5.15m/16.9'	5.40m/17.6'

* As reported for 7:00 a.m. on date shown.

** Levels at which over the bank flooding at the various locations begins to occur.

Damages: No estimates of damage were presented. One life was lost.

5.0 REFERENCES

1. Acres Consulting Services Limited. Regional Flood Frequency Analysis. Prepared for the Canada-New Brunswick Flood Damage Reduction Program, September 1977.

2. Burton, Ian. Preliminary Report on Flood Damage Reduction, Reprint from Geographical Paper, Volume 7, No. 3. Geographical Branch, Department of Mines and Technical Surveys, Ottawa, 1965.

3. Burton, Ian. Flood Damage in Canada, Geographical Bulletin, Volume 7, Nos. 3 and 4. Geographical Branch, Department of Mines and Technical Surveys, Ottawa, 1965.

4. Canada - Department of Transport, Meteorological Branch. Storm Analyses, 1918 to 1973; Atmospheric Environment Service, 4905 Dufferin Street, Downsview, Ontario, M3H 5T4.

5. Canada - Department of Transport, Meteorological Branch. Critical Meteorological Conditions for Maximum Floods in the Saint John River Basin, by J.P. Bruce and U. Sporns. Canadian Meteorological Memoirs, No. 14, 1963.

6. Canada - Department of Transport, Meteorological Branch. Atlas of Rainfall Intensity - Duration - Frequency Data for Canada, by J.P. Bruce. Climatological Study No. 8, 1968.

7. Canada - Department of Transport, Meteorological Branch. Break-Up and Freeze-Up Dates in Canada, by W.T.R. Allen, October, 1964.

8. Canada Works '84. Computerized Data Retrieval System of Critical Flood Levels in the Saint John River Basin. Prepared by Rosemarie Carta for J.E. Peters Management Limited, October, 1984.

9. Collier, E.P. and Nix, G.A., Flood Frequency Analysis for the New Brunswick - Gaspé Region, Technical Bulletin No. 9, Inland Waters Branch, Department of Energy, Mines and Resources, 1967.

10. Department of Energy, Mines and Resources, Inland Waters Branch. Floods of 1961 in New Brunswick. Water Resources Paper No. 134F, Ottawa, 1967.

11. Department of Environment, Water Planning and Operations Branch. Summary of Newspaper Reports on Flooding in the Saint John River Basin - Saint John Telegraph Journal. Unpublished, 1971.

12. Department of Environment, Inland Waters Directorate. Hydrology of the Saint John River Basin. A report prepared for the Saint John River Basin Board, Halifax, December, 1973.

13. Department of Environment, Inland Waters Directorate. Flooding in the Saint John River Basin. A report prepared for the Saint John River Basin Board, Halifax, December, 1973.

14. Department of Environment, Inland Waters Directorate, Water Resources Branch. Historical Streamflow Summary Atlantic Provinces to 1982, Water Survey of Canada, Ottawa, 1983.

15. Department of Environment, Inland Waters Directorate. New Brunswick Flood, April - May, 1973, Technical Bulletin No. 81, Halifax, 1974.

16. Department of Environment, Atmospheric Environment Service. Temperatures and Precipitation 1941-1970, Atlantic Provinces. Downsview, Ontario.

17. Department of Mines and Technical Surveys, Geographical Branch. 1957 Atlas of Canada, Ottawa.

18. Department of Environment, Inland Waters Directorate. Flooding Events in Nova Scotia - An Historical Perspective, prepared by A.D. Kindervater, Halifax, 1975.

19. Department of the Interior, Canada, Water Power Branch. Report on Floods on New Brunswick Rivers, by K.G. Chisholm, 1923.

20. Department of Northern Affairs and National Resources, Water Resources Branch. Saint John River Basin Flood of April, 1958 (Draft), prepared by D.F. Kirk and W. O'Sullivan, Jr., November, 1958.

21. Department of Public Works, New Brunswick District. Engineering Report of Flood Damage to Highway and Hydro-Electric Systems in the Province of New Brunswick, 1970.

22. Department of Public Works, Atlantic Region. Supplementary Engineering Report on Flood Damage in the Province of New Brunswick, February 1970. Fredericton, December 1972.

23. Department of Public Works, Atlantic Region. Engineering Report on Flood Damage in the Province of New Brunswick, May 1973. Fredericton, September, 1973.

24. Department of Public Works, Atlantic Region. Flooding in New Brunswick, 1974, prepared by G.H. McLachlan, Assistant Federal Aid Engineer. November, 1974.

25. Department of Public Works, Atlantic Region. Engineering Report on Flood Damage in the Province of New Brunswick, April 1976. Fredericton, September, 1975.

26. Department of Public Works, Atlantic Region. Engineering Report on Flood Damage in the Province of New Brunswick, August 1976. Fredericton, October, 1976.

27. Environment Canada, Inland Waters Directorate, Atlantic Region and Environment New Brunswick, Water Resources Branch. The Flood of 1979, Saint John River Basin, New Brunswick. March, 1981. Report T-8101.

28. Department of Public Works, Atlantic Region. Engineering Report on Flood Damage in the Province of New Brunswick, Spring of 1979, prepared by J.B. Zinck, Project Engineer, Saint John, August, 1979.

29. Folster, M.E., Historical Flood Review of the Upper Kennebecasis River Basin. For the Water Resources Branch, N. B. Department of Environment, Fredericton, July, 1980.

30. Folster, M.E., Review of Historical Floods, Walker Brook and Campbellton Waterfront. Fredericton, August, 1980.

31. Folster, M.E., Flood of February 12, 1981, Kennebecasis River Basin. March, 1981.

32. International St. Croix River Engineer Board. Report on Preliminary Investigations to the International Joint Commission. September, 1957 .

33. LeBrun-Salonen, Melanie L., The April 1976 Ice Jam Floods in New Brunswick. A report prepared under the New Employment Expansion Development Program, J.E. Peters Management Limited, October, 1983.

34. LeBrun-Salonen, Melanie L., The March 1936 Ice Jam Flood in New Brunswick. A report prepared under the New Employment Expansion Development Program, J.E. Peters Management Limited, September, 1983

35. LeBrun-Salonen, Melanie L., The February 1970 Ice Jam Floods in New Brunswick. A report prepared under the Canada Works Program, J.E. Peters Management Limited, August, 1984.

36. LeBrun-Salonen, Melanie L., The April 1950 Ice Jam Floods in New Brunswick. A report prepared under the Canada Works Program, J.E. Peters Management Limited, 1984.

37. Lockhart, J.G., Floods on the Upper Kennebecasis River and the Flash Flood on February 12, 1981. Paper presented to a meeting of the Saint John River Hydrology Committee, Portland, Maine. June 2 - 3, 1981.

38. Montreal Engineering Company Ltd., January, 1969. Maritime Provinces Water Resources Study, Stage 1, Volume 3, New Brunswick, Books 1-3, for Atlantic Development Board.

39. NEED (New Employment Expansion Development Program). Critical Flood Levels in the Fredericton Area. Prepared by W.A. Duplisea, D.P. Gould and G. Gammon for J.E. Peters Management Limited, September, 1983.

40. NEED (New Employment Expansion Development Program). Critical Flood Levels in the Lower Fredericton-Lincoln, Lower St. Mary's and Upper Maugerville Areas. Prepared by W.A. Duplisea and D.P. Gould for J.E. Peters Management Limited, November, 1983.

41. New Brunswick Water Authority. Preliminary Search of Newspaper Records for Flood Damage Reports, by P. Hansen. Unpublished, 1971.

42. New Brunswick Electric Power Commission. Effects of Flooding on the Saint John River, by R.E. Tweedale, 1953.

43. New Brunswick Department of Highways. 116th. Annual Report, 1969-1970.

44. Nicholson, Margaret. Historical Flood Review of the Newcastle Area. Prepared under the Canada-New Brunswick Flood Damage Reduction Program, Fredericton, June, 1982.

45. Nicholson, Margaret. Historical Flood Review of the Town of Sackville. Prepared under the Canada-New Brunswick Flood Damage Reduction Program, Fredericton, August, 1982.

46. Pol, R. A. Flood of February 12, 1981 in the Kennebecasis River Basin, New Brunswick. Water Resources Branch, Inland Waters Directorate, Environment Canada, Dartmouth, N. S., 1982.

47. Proctor and Redfern Ltd., Documentation of Information on the March 1979 Flood along the Magaguadavic River, Second Falls to St. George, prepared for Environment New Brunswick, May, 1979.

48. Raymond, Rev. W.O., History of the Saint John River, A.D. 1604-1784. Saint John, 1905.

49. Raymond, Rev. W.O., The River Saint John - Its Physical Features, Legends and History from 1604 to 1784. Saint John, 1910.

50. Saint John River Basin Board, Floods in the Saint John River Basin. Report S3, Fredericton, 1974.

51. Newspapers Researched:

(1) The Morning Chronicle, Halifax, N.S., 1895-1920.
(2) The Halifax Herald, Halifax, N.S., 1923-1935.
(3) The Halifax Chronicle, Halifax, N.S., 1936 +.
(4) The Halifax Chronicle-Herald, Halifax, N.S., 1950 +.
(5) The Amherst News and Sentinel, Amherst, N.S., 1900-1930.
(6) The Amherst Daily News, Amherst, N.S., 1931-1975.
(7) The Oxford Journal, Oxford, N.S., 1900-1975.
(8) The Graphic, Campbellton, N.B., 1908 +.
(9) The Tribune, Campbellton, N.B., 1905 +.
(10) The Daily Gleaner, Fredericton, N.B., 1880 +.
(11) The North Shore Leader, Newcastle, N.B., 1906 +.
(12) The Telegraph - Journal, Saint John, N.B., 1869 +.

50. Newspapers Researched (Cont'd):

(13) The Saint Croix Courier, St. Stephen, N.B., 1865 +.
(14) The Moncton Daily Times, Moncton, N.B., Miscellaneous.
(15) The Kings County Record, Sussex, N.B., 1902 +.
(16) The Sussex Valley Register, Sussex, N.B., 1981
(17) The Woodstock Bugle, Woodstock, N.B., 1976 +.
(18) The Chatham Gazette, Chatham, N.B., 1915 +
(19) The Tribune Post, Sackville, N.B., 1956 +
(20) The Evening Globe, Saint John, N.B., 1900 +
(21) The Hartland Observer, Hartland, N.B., 1920 +

These newspapers were located at the Public Archives of Nova Scotia, Dalhousie University, Halifax, Nova Scotia and at the University of New Brunswick, Harriet Irving Library, Fredericton, New Brunswick.

NOTE: Papers were also located at (1) Inland Waters Directorate, Environment Canada, Dartmouth, N.S.; (2) The Oxford Journal, Rideau Street, Oxford, N.S.; and (3) Amherst Daily News Ltd., Lawrence Street, Amherst, N.S.